



**MASSEY FERGUSON**  
LAWN & GARDEN EQUIPMENT

# OPERATOR'S MANUAL



## ZT Series

### 14HP Riders

Mfg. No.	Description
1693300	Zero Turn, 14HP Hydro

### 16HP Riders

Mfg. No.	Description
1693302	Zero Turn, 16HP Hydro

### 38" Mower Decks

Mfg. No.	Description
1692913	38" Mower Deck

### 44" Mower Decks

Mfg. No.	Description
1692915	44" Mower Deck

1719193-00

Rev 4/1998  
TP 100-2165-00-ZT-SMA





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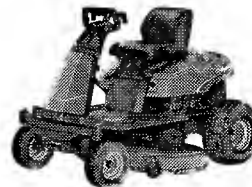
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*NOTE: In this manual, "left" and "right" are referred to as seen from the operating position.*

## WARNING

Engine exhaust from this product contains chemicals known, in certain quantities, to cause cancer, birth defects, or other reproductive harm.

# Identification Numbers



## IDENTIFICATION TAG LOCATIONS

When contacting your Authorized Dealer for replacement parts, service, or information **YOU MUST HAVE THESE NUMBERS.**



Unit  
Identification Tag

Mower Deck  
Identification Tag

## IDENTIFICATION NUMBERS

Record your model name/number, unit and mower deck manufacturer numbers and engine serial number in the space provided for easy reference.

- The **Unit I.D. tag** is located on the left-side, of the frame, as shown below.
- The **Mower Deck I.D. tag** is also on the left side, on top of the mower deck.
- For location of **Engine Serial Number**, refer to the Engine Owner's Manual.


Be sure to fill out and return the Warranty Registration Card supplied with your unit.

PRODUCT REFERENCE DATA	
Model Description Name/Number	
Unit MFG Number	Unit SERIAL Number
Mower Deck MFG Number	Mower Deck SERIAL Number
Dealer Name	Date Purchased
ENGINE REFERENCE DATA	
Engine Make	Engine Model
Engine Type/Spec	Engine Code/Serial Number



# Safety Rules & Information



Read these safety rules and follow them closely. Failure to obey these rules could result in loss of control of unit, severe personal injury or death to you, or bystanders, or damage to property or equipment. **This mowing deck is capable of amputating hands and feet and throwing objects.** The triangle  in text signifies important cautions or warnings which must be followed.

## GENERAL OPERATION

- Read, understand, and follow all instructions in the manual and on the unit before starting.
- Only allow responsible adults, who are familiar with the instructions, to operate the unit.
- Clear the area of objects such as rocks, toys, wire, etc., which could be picked up and thrown by the blade(s).
- Be sure the area is clear of other people before mowing. Stop unit if anyone enters the area.
- Never carry passengers.
- Do not mow in reverse unless absolutely necessary. Always look down and behind before and while travelling in reverse.
- Be aware of the mower discharge direction and do not point it at anyone. Do not operate the mower without either the entire grass catcher or the deflector in place.
- Slow down before turning.
- Never leave a running unit unattended. Always disengage the PTO, set parking brake, stop engine, and remove keys before dismounting.
- Turn off the PTO switch to disengage the blades when not mowing.
- Stop engine before removing grass catcher or unclogging chute.
- Mow only in daylight or good artificial light.
- Do not operate the unit while under the influence of alcohol or drugs.
- Watch for traffic when operating near or crossing roadways.
- Use extra care when loading or unloading the unit into a trailer or truck.



## WARNING

**Never operate on slopes greater than 30 percent (16.7°) which is a rise of three feet vertically in 10 feet horizontally.**

Select slow ground speed before driving onto slope. Use extra caution when operating on slopes with rear-mounted grass catcher.

**Mow UP and DOWN the slope, never across the face, use caution when changing directions and DO NOT START OR STOP ON SLOPE.**

## SLOPE OPERATION

Slopes are a major factor related to loss-of-control and tip-over accidents, which can result in severe injury or death. **All slopes require extra caution. If you cannot back up the slope or if you feel uneasy on it, do not drive on it.**

### Do

- Mow up and down slopes, not across.
- Remove obstacles such as rocks, tree limbs, etc.
- Watch for holes, ruts, or bumps. Uneven terrain could overturn the unit. Tall grass can hide obstacles.
- Use slow speed. Choose a low gear so that you will not have to stop or shift while on the slope.
- Use extra care with grass catchers or other attachments. These can change the stability of the unit.
- Keep all movement on the slopes slow and gradual. Do not make sudden changes in speed or direction.

### Do Not

- *Do not* start or stop on a slope. If tires lose traction, disengage the blade(s) and proceed slowly straight down the slope.
- *Do not* turn on slopes unless necessary, and then, turn slowly and gradually uphill, if possible.
- *Do not* mow near drop-offs, ditches, or embankments. The mower could suddenly turn over if a wheel is over the edge of a cliff or ditch, or if an edge caves in.
- *Do not* mow on wet grass. Reduced traction could cause sliding.
- *Do not* try to stabilize the unit by putting your foot on the ground.
- *Do not* use grass catcher on steep slopes.

# Safety Rules & Information

---

## CHILDREN

Tragic accidents can occur if the operator is not alert to the presence of children. Children are often attracted to the unit and the mowing activity. Never assume that children will remain where you last saw them.

- Keep children out of the mowing area and under the watchful care of another responsible adult.
- Be alert and turn unit off if children enter the area.
- Before and during reverse operation, look behind and down for small children.
- Never carry children. They may fall off and be seriously injured or interfere with safe unit operation.
- Never allow children to operate the unit.
- Use extra care when approaching blind corners, shrubs, trees, or other objects that may obscure vision.

## TRANSPORTING AND STORAGE

- Always observe safe refueling and fuel handling practices when refueling the unit after transportation or storage.
- Always follow the engine manual instructions for storage preparations before storing the unit for both short and long term periods.
- Always follow the engine manual instructions for proper start-up procedures when returning the unit to service.
- Never store the unit or fuel container inside where there is an open flame or pilot light, such as in a water heater. Allow unit to cool before storing.

## SERVICE AND MAINTENANCE

- Use extra care in handling gasoline and other fuels. They are flammable and vapors are explosive.
  - a) Use only an approved container.
  - b) Never remove gas cap or add fuel with the engine running. Allow engine to cool before refueling. Do not smoke.
  - c) Never refuel the unit indoors.

- Never run a unit in an enclosed area.
- Keep nuts and bolts, especially blade attachment bolts, tight and keep equipment in good condition.
- Never tamper with safety devices. Check their proper operation regularly.
- Keep unit free of grass, leaves, or other debris build-up. Clean up oil or fuel spillage.
- Stop and inspect the equipment if you strike an object. Repair, if necessary, before restarting.
- Never make adjustments or repairs with the engine running unless specified otherwise in the engine manufacturer's manual.
- Grass catcher components are subject to wear, damage, and deterioration, which could expose moving parts or allow objects to be thrown. Frequently check components and replace with manufacturer's recommended parts, when necessary.
- Mower blades are sharp and can cut. Wrap the blade(s) or wear gloves, and use extra caution when servicing them.
- Check brake operation frequently. Adjust and service as required.
- Use only factory authorized replacement parts when making repairs.
- Always comply with factory specifications on all settings and adjustments.
- Only authorized service locations should be utilized for major service and repair requirements.
- Never attempt to make major repairs on this unit unless you have been properly trained. Improper service procedures can result in hazardous operation, equipment damage and voiding of manufacturer's warranty.



## WARNING

**Never place hands near the hydro pump cooling fan when the unit is running. Cooling fan is located on top of transaxle.**

## SAFETY DECALS

This unit has been designed and manufactured to provide you with the safety and reliability you would expect from an industry leader in outdoor power equipment manufacturing.

Although reading this manual and the safety instructions it contains will provide you with the necessary basic knowledge to operate this equipment safely and effectively, we have placed several safety labels on the unit to remind you of this important information while you are operating your unit.


All DANGER, WARNING, CAUTION and instructional messages on your rider and mower should be carefully read and obeyed. Personal bodily injury can result when these instructions are not followed. The information is for your safety and it is important! The safety decals below are on your rider and mower.

If any of these decals are lost or damaged, replace them at once. See your local dealer for replacements.

These labels are easily applied and will act as a constant visual reminder to you, and others who may use the equipment, to follow the safety instructions necessary for safe, effective operation.

### OPERATION

**⚠ DANGER**




**ROTATING BLADES CUT OFF ARMS AND LEGS**

**STOP MOWER WHEN CHILDREN ARE NEAR.**

**NO RIDERS — THEY FALL OFF.**

**⚠ DANGER**



**OPERATING ON SLOPES CAN BE DANGEROUS**

**SEE OPERATOR'S MANUAL.**

**IF YOU CANNOT BACK-UP A HILL — DO NOT DRIVE ON IT.**

**⚠ WARNING**

**AVOID SERIOUS INJURY OR DEATH**

- READ OPERATOR'S MANUAL(S).
- KNOW LOCATION AND FUNCTION OF ALL CONTROLS.
- KEEP SAFETY DEVICES (GUARDS, SHIELDS, & SWITCHES) IN PLACE AND WORKING.
- REMOVE OBJECTS THAT COULD BE THROWN BY THE BLADE.
- DO NOT MOW WHEN CHILDREN OR OTHERS ARE AROUND.
- NEVER CARRY CHILDREN.
- LOOK DOWN AND BEHIND—BEFORE AND WHILE BACKING.
- AVOID SUDDEN TURNS.
- IF YOU CANNOT BACK UP A HILL — DO NOT OPERATE ON IT.
- GO UP AND DOWN SLOPES, NOT ACROSS.
- IF MACHINE STOPS GOING UPHILL, STOP BLADE AND BACK DOWN SLOWLY.
- BE SURE BLADE(S) AND ENGINE ARE STOPPED BEFORE PLACING HANDS OR FEET NEAR BLADE(S).
- WHEN LEAVING MACHINE, SHUT OFF ENGINE, REMOVE KEY, AND SET PARKING BRAKE.

**To Start Engine**

- Seat must be occupied.
- Clutch/Brake pedal must be depressed.
- PTO switch must be off.

**When Operator Leaves Seat**

- Engine will shut off if Parking Brake is not engaged.
- Engine will shut off if PTO switch is on.

**To Operate PTO clutch**

- The operator must be in seat.
- To engage PTO, pull switch up.
- To disengage PTO, push switch down.

**(P) Parking Brake**

**To Set Parking Brake**

- Pull knob up while Clutch/Brake pedal is depressed.
- Release Clutch/Brake pedal while holding knob.

**To Release Parking Brake**

- Depress Clutch/Brake pedal.
- Push knob down while Clutch/Brake pedal is depressed.

**To Adjust Top Speed of Wheels**

**COLUMN KNOBS INDEPENDENTLY CONTROL TOP SPEED OF EACH WHEEL**

- Turn knob clockwise to lower top speed of a wheel.
- Turn knob counter-clockwise to raise top speed of a wheel.

Lower speed of faster wheel until vehicle travels in straight line when both levers are in the MAXIMUM forward position.

**DO NOT TOW UNIT!**

Damage may result to drive mechanism.

**Decal - Operating Instructions**  
**Part No. 1715993**



**Decal - Danger**  
**Part No. 1704276**



**Decal - Danger**  
**Part No. 1704277**

# Features & Controls of the Zero Turn Rider



Please take a moment and familiarize yourself with the name, location, and function of these controls so that you will better understand the safety and operating instructions provided in this manual.

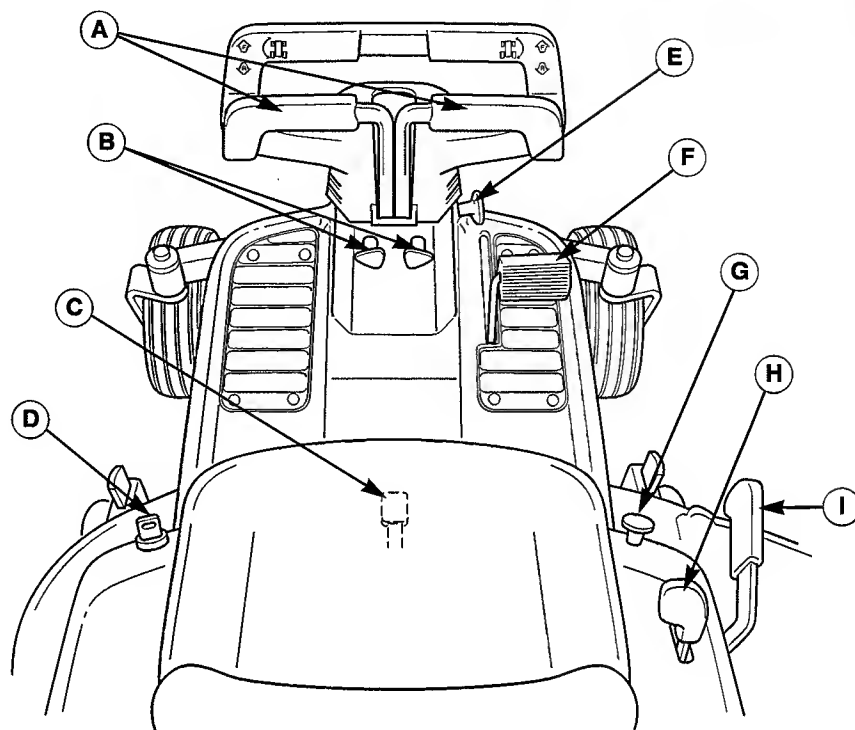


Figure 1. Rider & Mower Controls (Seen from Operator's Position)

- |                                |                       |                                 |
|--------------------------------|-----------------------|---------------------------------|
| A. Ground Speed Control Levers | D. Ignition Switch    | G. PTO (Electric Clutch) Switch |
| B. Top Speed Adjustment Knobs  | E. Parking Brake Knob | H. Throttle/Choke Control       |
| C. Seat Adjustment Lever       | F. Clutch/Brake Pedal | I. Mower Height Adjuster        |

## CONTROL FUNCTIONS

The information below briefly describes the function of individual controls. Starting, stopping, driving, and mowing require the combined use of several controls applied in specific sequences. To learn what combination and sequence of controls to use for various tasks see the OPERATION section.

### A. Ground Speed Control Levers

These levers control the ground speed of the rider. The left lever controls the left rear drive wheel and the right controls the right rear drive wheel.

Moving a lever forward increases the FORWARD speed of the associated wheel, and pulling back on a lever increases the REVERSE speed.

*Note: The further a lever is moved away from the neutral position the faster the drive wheel will turn.*

### B. Top Speed Adjustment Knobs

These knobs independently control the top speed of the left and right drive wheels, and are used to balance the maximum forward lever positions. Turn a knob CLOCKWISE to lower the top speed of a wheel, and COUNTER-CLOCKWISE to increase the top speed of a wheel.

### C. Seat Adjustment Lever

The seat can be adjusted forward and back. Move the lever to the LEFT, position the seat as desired, and release the lever to lock the seat in position.



*Control Functions continued...*

### D. Ignition Switch

The ignition switch starts and stops the engine, it has three positions:

- OFF Stops the engine and shuts off the electrical system.
- RUN Allows the engine to run and powers the electrical system.

START Cranks the engine for starting.

*NOTE: Never leave the ignition switch in the RUN position with the engine stopped—this drains the battery.*

### E. Parking Brake Knob

The parking brake is applied by fully depressing the clutch/brake pedal (F, Figure 1), and then pulling UP on the parking brake knob (E, Figure 1). To release the parking brake, fully depress the clutch/brake pedal, and push the knob DOWN.

### F. Clutch/Brake Pedal

Depressing the clutch/brake pedal disengages the transmissions and applies the brake.

### G. PTO (Power Take Off) Switch

The PTO switch engages and disengages the mower. Pull OUT on the switch to engage, and push IN to disengage.

### H. Mower Height Adjuster

This controls the cutting height of the mower deck. Moving this lever to the LEFT and then into the desired cutting height position. Moving the lever FORWARD decreases the cutting height, and BACK increases the cutting height.

### I. Throttle / Choke Control

The throttle controls engine speed. Move the throttle forward to increase the engine speed and back to decrease engine speed. Moving the throttle / choke control fully forward chokes the engine for cold starts. (A warm engine may not require choking.) Always operate the unit at FULL throttle.



## SAFETY INTERLOCK SYSTEM

This unit is equipped with safety interlock switches and other safety devices. These safety systems are present for your safety, do not attempt to bypass safety switches, and never tamper with safety devices. Check their operation regularly.

### Operational SAFETY Checks

Your unit is equipped with a seat switch safety system. Check the seat switch operation every fall and spring with the following tests.

#### Test 1 — Engine should NOT crank if any of the following conditions exist:

- PTO switch is engaged (ON), OR
- Clutch/brake pedal is NOT fully depressed.

#### Test 2 — Engine SHOULD crank if ALL of the following conditions are met:

- PTO switch is NOT engaged, AND
- Clutch/brake pedal IS fully depressed.

#### Test 3 — Engine should SHUT OFF if any of the following conditions exist:

- Operator rises off seat with transmission control levers out of the neutral gate AND clutch/brake pedal NOT depressed, OR
- Operator rises off seat with clutch/brake pedal NOT fully depressed, OR
- Operator rises off seat with PTO engaged.

#### Test 4 — Blade Brake Check

Mower blades and mower drive belt should come to a complete stop within five seconds after electric PTO switch is turned off (or operator rises off seat). If mower drive belt does not stop within five seconds, see your dealer.

*NOTE: Once the engine has stopped, PTO switch must be turned off after operator returns to the seat in order to start the engine.*



## WARNING

**If the unit does not pass a safety test, do not operate it. See your authorized dealer. Under no circumstance should you attempt to defeat the purpose of the safety interlock system.**

# Operating the Zero Turn Rider



## GENERAL OPERATING SAFETY

Before first time operation:

- Be sure to read all information in the Safety and Operation sections before attempting to operate this rider and mower.
- Become familiar with all of the controls and how to stop the unit.
- Drive in an open area without mowing to become accustomed to the unit.

## ⚠ WARNING

Never allow passengers to ride on the unit.

Before leaving the operator's position for any reason, engage the parking brake, disengage the PTO, stop the engine and remove the key.

To reduce fire hazard, keep the engine, rider and mower free of grass, leaves and excess grease. Do not stop or park rider over dry leaves, grass or combustible materials.

Gasoline is highly flammable and must be handled with care. Never fill the tank when the engine is still hot from recent operation. Do not allow open flame, smoking or matches in the area. Avoid over-filling and wipe up any spills.

## CHECKS BEFORE STARTING

- Check that crankcase is filled to full mark on dipstick. See the engine Operator's Manual for instructions and oil recommendations.
- Make sure all nuts, bolts, screws and pins are in place and tight.
- Adjust the seat position, and make certain you can reach all controls from operator's position.
- Fill the gasoline tank with fresh gasoline. Refer to engine manual for gasoline recommendations.
- Make certain rear counterweights (see Figure 2) are installed at all times, and use extra caution if you will be operating the unit on sloping ground.

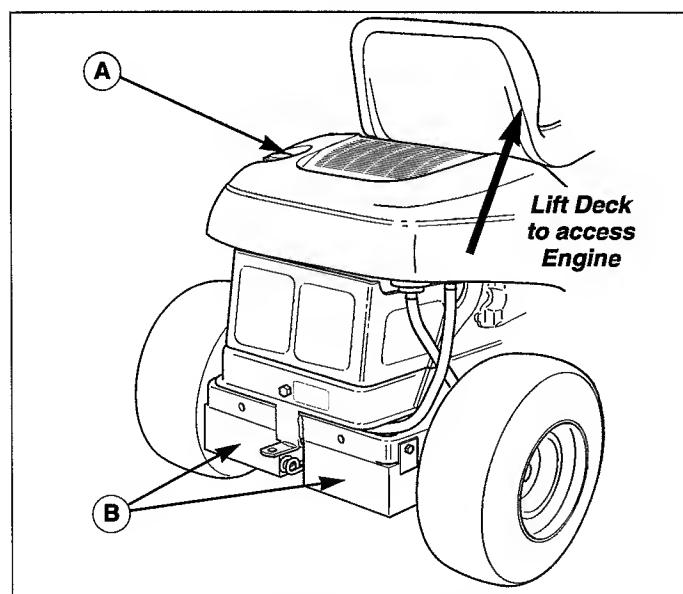


Figure 2. Engine Access & Rear Weights

- A. Fuel Tank
- B. Rear Counterweights

## ⚠ DANGER

### OPERATING ON SLOPES CAN BE DANGEROUS

Never operate on slopes greater than 30 percent (16.7°) which is a rise of three feet vertically in 10 feet horizontally.

Operate the rider at a slow ground speed when driving onto slope.

This unit is equipped with standard rear counterweights - **DO NOT OPERATE THE UNIT WITHOUT THESE COUNTERWEIGHT IN PLACE.**

In addition to counterweights, use extra caution when operating on slopes with rear-mounted grass catcher. Mow **UP** and **DOWN** the slope, never **across** the face, use caution when changing directions and **DO NOT START OR STOP ON SLOPE.**

## STARTING THE ENGINE

1. While sitting in the operator seat, and fully depress the clutch/brake pedal or set the parking brake.
2. Set engine throttle control (H, Figure 3) all the way up to CHOKE. A warm engine may not require choking.
3. Disengage the PTO by pushing the PTO switch all the way down (G, Figure 3)
4. Insert the key into the ignition switch (D, Figure 3) and turn it to START.
5. After the engine starts, move the engine throttle control (H, Figure 3) to SLOW. Warm up the engine by running it for at least a minute before engaging the PTO switch or driving the rider.
6. **After warming up the engine, ALWAYS operate the unit at FULL THROTTLE when mowing.**

**In the event of an emergency the engine can be stopped by simply turning the ignition switch to STOP. Use this method only in emergency situations. For normal engine shut down follow the procedure given in STOPPING THE RIDER.**

## STOPPING THE RIDER

1. Returning the ground speed control levers (A, Figure 3) to the middle positions will stop rider movement. **For emergency stopping depress the clutch/brake pedal** (see F, Figure 3).
2. Disengage the PTO by pushing down on the PTO switch (See G, Figure 3).
3. Set engine throttle control (H, Figure 3) to mid-throttle position and turn the ignition key to OFF. Remove the key.

**NOTE:** Stopping the engine at any speed other than mid-throttle can cause engine damage. Do NOT stop the engine with the throttle control in the IDLE position.

## PUSHING THE RIDER BY HAND

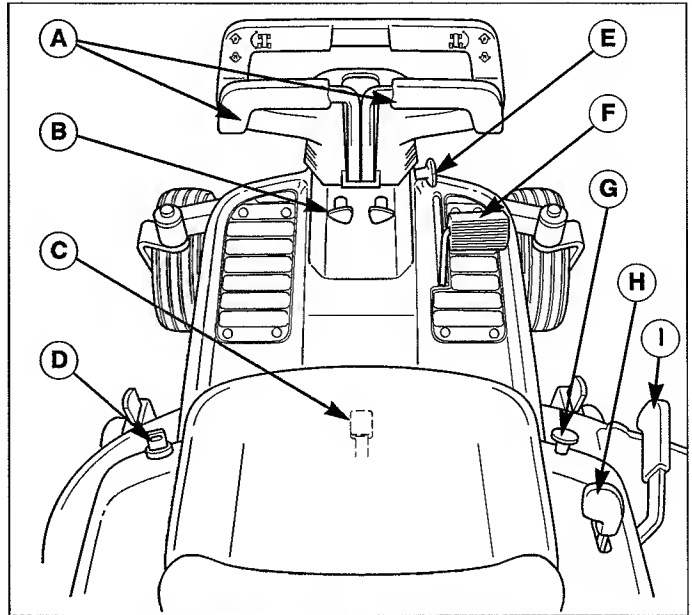
1. Disengage the PTO, engage the parking brake, turn the ignition OFF, and remove the key.
2. Disengage the transmissions by moving both release levers from engaged position (A, Figure 4) to released position (B). The release levers are located in the back of the unit between the rear weights (see Figure 4). **BOTH release levers must be pulled fully rearward and down to push the rider by hand.**

**NOTE:** To drive the rider BOTH release levers must be moved completely forward to engage the transmissions.



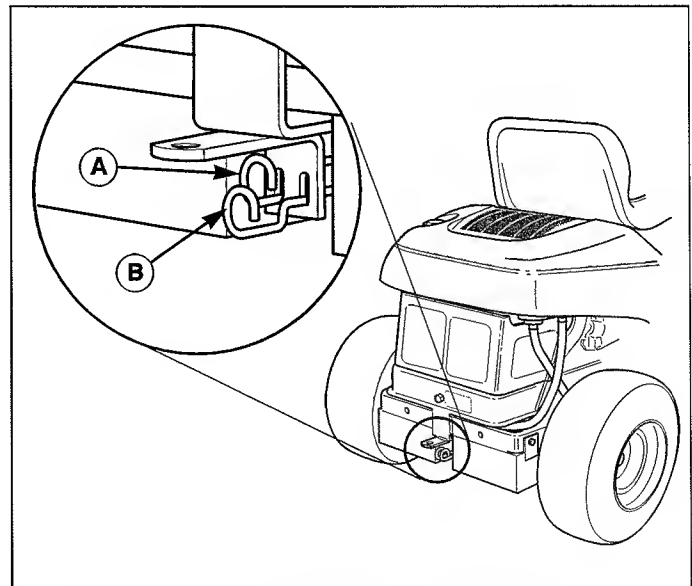
### DO NOT TOW RIDER

Towing the unit will cause transmission damage. Do not use another vehicle to push or pull this unit.



**Figure 3. Rider & Mower Controls (Operator's Position)**

- A. Ground Speed Control Levers
- B. Top Speed Adjustment Knobs
- C. Seat Adjustment Lever
- D. Ignition Switch
- E. Parking Brake Knob
- F. Clutch/Brake Pedal
- G. PTO (Electric Clutch) Switch
- H. Throttle/Choke Control
- I. Mower Height Adjuster



**Figure 4. Hydro Transmission Release Levers**

- A. Left Lever (shown in DRIVE position)
- B. Right Lever (shown in PUSH position)

# Operating the Zero Turn Rider

## ZERO TURN DRIVING PRACTICE

The lever controls of the Zero Turn rider are *responsive*, and learning to gain a *smooth* and *efficient* control of the rider's forward, reverse, and turning movements will take some practice.

Spending some time going through the maneuvers shown and becoming familiar with how the unit accelerates, travels, and steers — before you begin mowing — is absolutely essential to getting the most out of the Zero Turn rider.

**Locate a smooth, flat area of your lawn — one with plenty of room to maneuver.** (Clear the area of objects, people and animals before you begin.) Operate the unit at mid-throttle during this practice session (ALWAYS operate at full throttle when mowing), and turn slowly to prevent tire slippage and damage to your lawn.

We suggest you begin with the **Smooth Travel** procedure to the right, and then advance through the forward, reverse, and turning maneuvers.

### ! WARNING

Make certain the area of operation, and especially the direction of travel is clear of objects, people and animals.

Always look DOWN AND BEHIND before backing!

## BASIC DRIVING

### Forward Travel Practice

Gradually move both ground speed control levers — evenly FORWARD from neutral. Slow down and repeat.

**NOTE:** Straight forward travel takes practice. If necessary, top speed can be balance-adjusted — see the Top Speed Adjustment Knobs in the Adjustments section near the back of this manual.

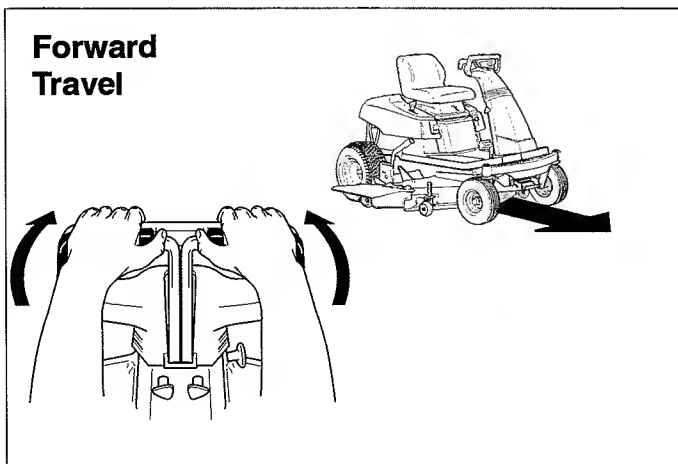


Figure 6. Forward Travel

### Smooth Travel

The lever controls of the Zero Turn rider are **RESPONSIVE**.

*The BEST method of handling the ground speed control levers is in three steps — as shown in Figure 5.*

FIRST place the palms of your hands onto the levers as shown.

SECOND, to go forward gradually push the levers toward the console with your palms.

THIRD, to speed up move the levers farther forward. To slow down smoothly, loosen your grip on the console and allow the levers to return toward neutral.

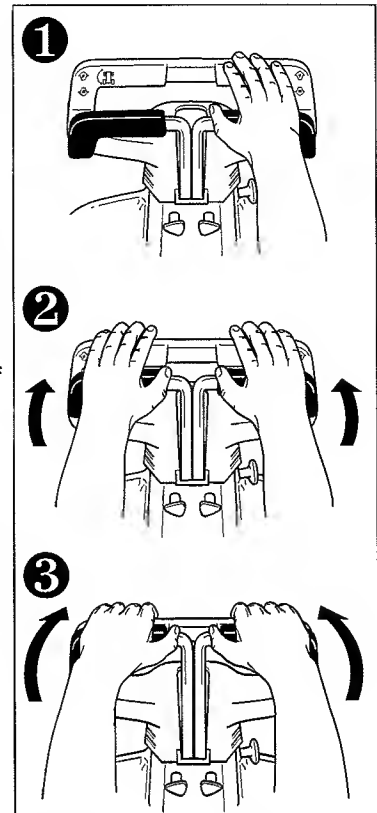


Figure 5. Move Control Levers Gradually.

### Reverse Travel Practice

LOOK DOWN & BEHIND, then gradually move both ground speed control levers evenly BACK from neutral. Slow down and repeat.

**NOTE:** Practice backing up for several minutes before attempting to do so near objects. The rider turns sharply in reverse as well as forward, and backing up straight takes practice.

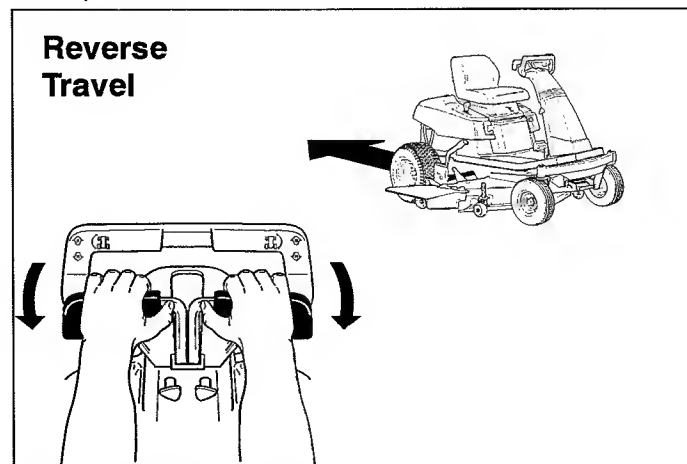


Figure 7. Reverse Travel

### Practice Turning Around a Corner

While traveling forward allow one handle to gradually return back toward neutral. Repeat several times.

**NOTE:** To prevent pivoting directly on the tire tread, it is best to keep both wheels going at least slightly forward.

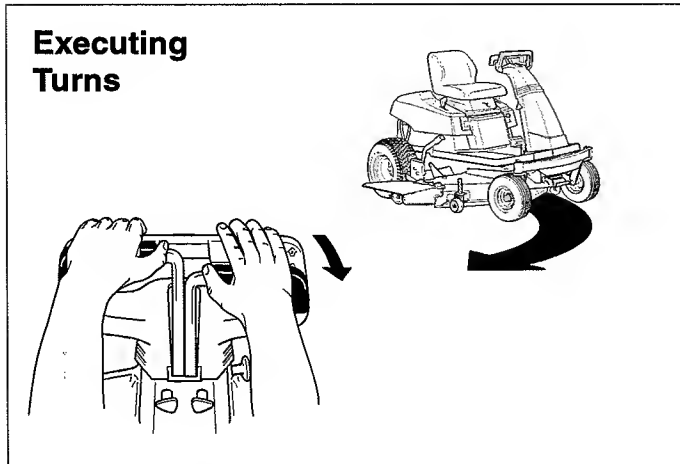


Figure 8. Turning Around a Corner

### Practice Turning In Place

To turn in place, "Zero Turn," gradually move one ground speed control lever forward from neutral and one lever back from neutral simultaneously. Repeat several times.

**NOTE:** Changing the amount each lever is pulled—forward or back, changes the "pivot point" you turn on.

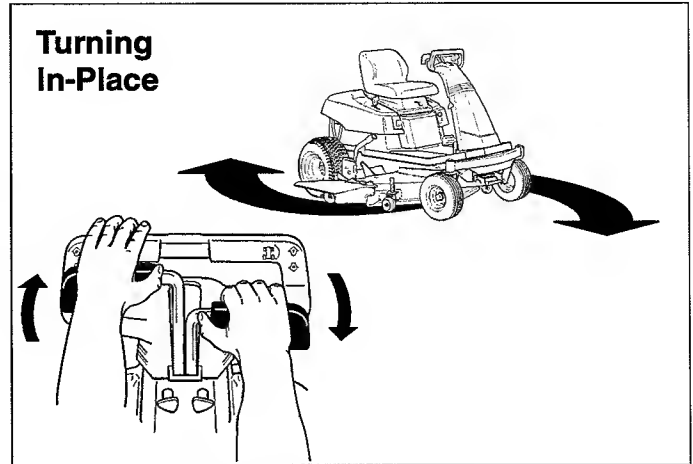


Figure 9. Turning in Place

## ADVANCED DRIVING

### Executing an End-Of-Row Zero Turn

Your Zero Turn Rider's unique ability to turn in place allows you to turn around at the end of a cutting row rather than having to stop and Y-turn before starting a new row.

For example, to execute a right end-of row Zero Turn:

1. Slow down at the end of the row.
2. Move the LEFT ground speed control lever forward slightly while moving the RIGHT ground speed control lever back to center and then slightly back from center.
3. Begin mowing forward again.

This technique turns the rider RIGHT and slightly overlaps the row just cut — eliminating the need to back up and re-cut missed grass.

*As you become more familiar and experienced with operating the Zero Turn rider, you will learn more maneuvers that will make your mowing time easier and more enjoyable.*

**Remember, the more you practice, the better your control of the Zero Turn will be!**

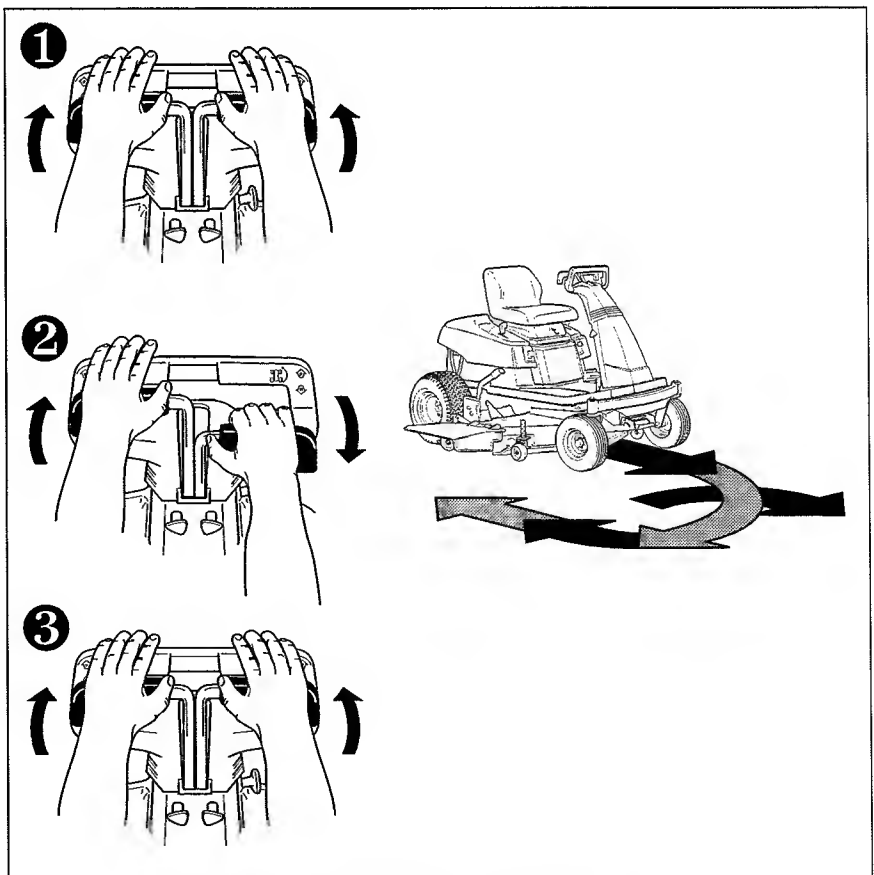


Figure 10. Executing an End-Of-Row Turn

# Operating the Zero Turn Rider

## MOWER DECK REMOVAL & INSTALLATION

*NOTE: Perform mower removal and installation on a hard, level surface such as a concrete floor.*

### WARNING

Engage parking brake, disengage PTO, stop engine and remove key before attempting to install or remove the mower.

### Removing the Mower Deck

1. Swing the front wheels out.
2. Place the mower height adjustment lever (A, Figure 12) in the lowest cutting position.
3. Release tension on the drive belt using the Idler Pulley Arm (E, Figure 12) and release the drive belt.
4. Disconnect the front hitch by pulling out on the release rod (A, Figure 11) and lifting the mower hitch (C, Figure 11) off the rider hitch bracket (B, Figure 11).
5. Slide the mower deck forward and out from under the right side of the rider.

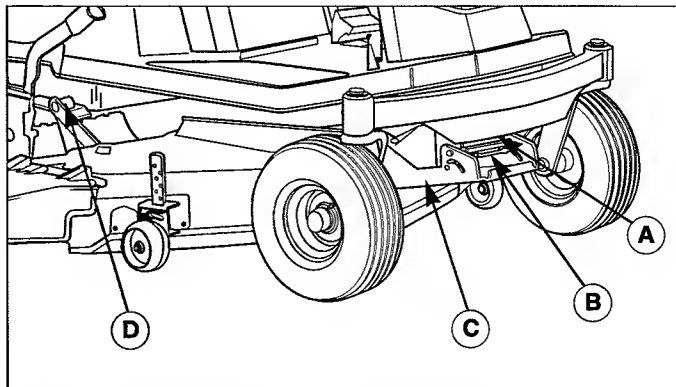
### Installing the Mower Deck

1. Swing the front wheels out.
2. Place the mower height adjustment lever (A, Figure 12) in the lowest cutting position.
3. Slide the mower deck under the right side of the rider, and then back, making certain the mower supports (D, Figure 12) are properly located onto the rider support plates (see D, Figure 11).
4. Attach the drive belt.
5. Connect the mower hitch to the front rider hitch by pulling out on the release rod (See Figure 11).

## ADJUSTING MOWER CUTTING HEIGHT

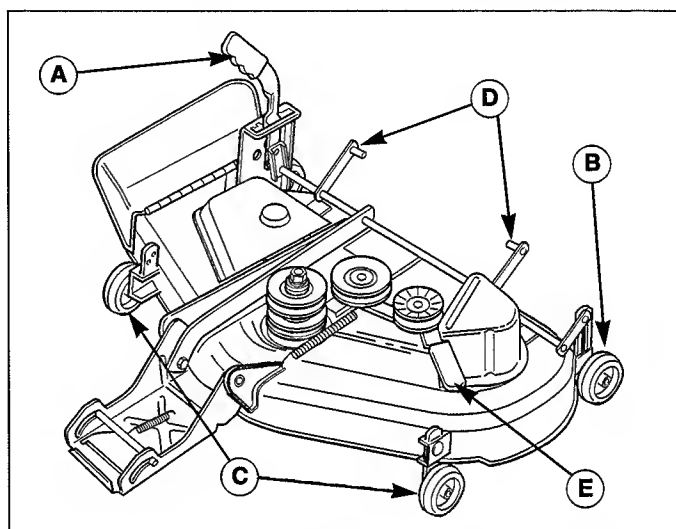
The Mower Height Adjustment Lever (A, Figure 13) controls the cutting height of the mower deck. Move the lever LEFT and then to the desired cutting height. Moving the lever FORWARD decreases the cutting height, and BACK raises the cutting height.

The front gauge wheels are used only to help prevent scalping. The front gauge wheels are permanently mounted.



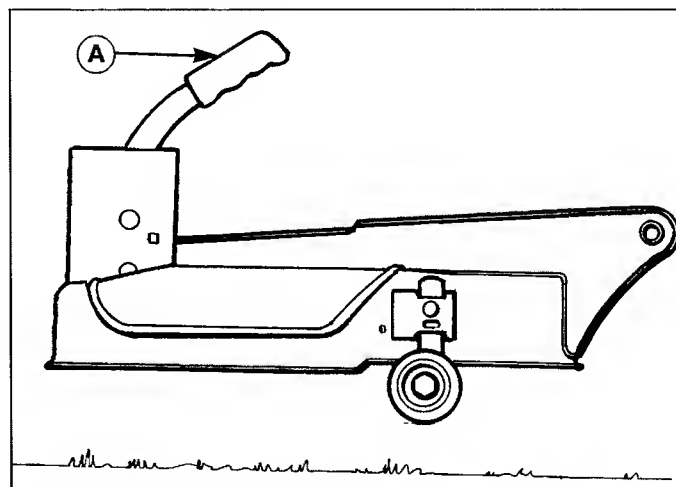
**Figure 11. Mower Hitch Components**

- |                        |                         |
|------------------------|-------------------------|
| A. Rider Hitch Bracket | C. Mower Hitch          |
| B. Release Rod         | D. Rider/Mower Supports |



**Figure 12. Mower Components (44" Deck Shown)**

- |  |                       |
|--|-----------------------|
| A. Mower Cutting Height Adjustment Lever | C. Front Gauge Wheels |
| B. Rear Gauge Wheel                      | D. Mower Supports     |
|  | E. Idler Pulley Arm   |



**Figure 13. Adjusting Mower Deck Gauge Wheels**

- A. Mower Height Adjustment Lever

## STORAGE

### Temporary Storage (30 Days Or Less)

Remember, the fuel tank will still contain some gasoline, so never store the unit indoors or in any other area where fuel vapor could travel to any ignition source. Fuel vapor is also toxic if inhaled, so never store the unit in any structure used for human or animal habitation.

Here is a checklist of things to do when storing your unit temporarily or in between uses:

- Keep the unit in an area away from where children may come into contact with it. If there's any chance of unauthorized use, remove the spark plug (s) and put in a safe place. Be sure the spark plug opening is protected from foreign objects with a suitable cover.
- If the unit can't be stored on a reasonable level surface, chock the wheels.
- Clean all grass and dirt from the mower.

### Long Term Storage (Longer Than 30 Days)

Before you store your unit for the off-season, read the Maintenance and Storage instructions in the Safety Rules section, then perform the following steps:

1. Drain crankcase oil while engine is hot and refill with a grade of oil that will be required when unit is used again.
2. Prepare the mower deck for storage as follows:
  - a. Remove mower deck from the unit.
  - b. Clean underside of mower deck.
  - c. Coat all bare metal surfaces with paint or light coat of oil to prevent rusting.
3. Clean external surfaces and engine.
4. Prepare engine for storage. See engine owner's manual.
5. Clean any dirt or grass from cylinder head cooling fins, engine housing and air cleaner element.
6. Cover air cleaner and exhaust outlet tightly with plastic or other waterproof material to keep out moisture, dirt and insects.
7. Completely grease and oil unit as outlined in the Normal Care section.
8. Clean up unit and apply paint or rust preventative to any areas where paint is chipped or damaged.
9. Be sure the battery is filled to the proper level with water and is fully charged. Battery life will be increased if it is removed, put in a cool, dry place and fully charged about once a month. If battery is left in unit, disconnect the negative cable.

## WARNING

Never store the unit, with gasoline in engine or fuel tank, in a heated shelter or in enclosed, poorly ventilated enclosures. Gasoline fumes may reach an open flame, spark or pilot light (such as a furnace, water heater, clothes dryer, etc.) and cause an explosion.

Handle gasoline carefully. It is highly flammable and careless use could result in serious fire damage to your person or property.

Drain fuel into an approved container outdoors away from open flame or sparks.

10. Drain fuel system completely or add Simplicity gasoline stabilizer to the fuel system. If you have chosen to use a fuel stabilizer and have not drained the fuel system, follow all safety instructions and storage precautions in this manual to prevent the possibility of fire from the ignition of gasoline fumes. Remember, gasoline fumes can travel to distant sources of ignition and ignite, causing risk of explosion and fire.

*NOTE: Gasoline, if permitted to stand unused for extended periods (30 days or more), may develop gummy deposits which can adversely affect the engine carburetor and cause engine malfunction. To avoid this condition, add Simplicity gasoline stabilizer to the fuel tank and run the engine a few minutes, or drain all fuel from the unit before placing it in storage.*

## STARTING AFTER LONG TERM STORAGE

Before starting the unit after it has been stored for a long period of time, perform the following steps.

1. Remove any blocks from under the unit.
2. Install the battery if it was removed.
3. Unplug the exhaust outlet and air cleaner.
4. Fill the fuel tank with fresh gasoline. See engine manual for recommendations.
5. See engine owner's manual and follow all instructions for preparing engine after storage.
6. Check crankcase oil level and add proper oil if necessary. If any condensation has developed during storage, drain crankcase oil and refill.
7. Inflate tires to proper pressure. Check fluid levels.
8. Start the engine and let it run slowly. DO NOT run at high speed immediately after starting. Be sure to run engine only outdoors or in well ventilated area.

# Regular Maintenance



## MAINTENANCE SCHEDULE & PROCEDURES

The following schedule should be followed for normal care of your rider and mower. You will need to keep a record of your operating time. Determining operating time is easily accomplished by multiplying the time it takes to do one job by the number of times you've done the job, or you can install the optional hour meter.

SAFETY ITEMS	See Page	Before First Use	Before Each Use	Every 5 Hours	Every 25 Hours	Every 100 Hours	Spring & Fall
Check Safety Interlock System	7	●					●
Check Rider Brakes	9 & 21	●					●
Check Mower Blade Stopping Time	23	●				●	
NORMAL CARE ITEMS	See Page	Before First Use	Before Each Use	Every 5 Hours	Every 25 Hours	Every 100 Hours	Spring & Fall
Check Rider/Mower for loose hardware	—	●	●	●			
Check Engine Oil Level	15*	●	●	●			●
Check Engine Air Filter	15*	●				***●	
Change Engine Oil & Filter **	15*	●			***● Every 50 Hours		***●
Lubricate Rider & Mower	16	●				***●	
Check Tire Pressure	14	●				***●	
Check Transmission Fluid	15	●				***●	
Check Fuel Filter	15	●				●	
Clean Battery & Cables	15	●				●	
Clean & Sharpen Mower Blades	18	●				●	
Inspect Spark Plug	15*	●				●	

\* See the engine manufacturer's owner's manual.

\*\* Change original engine oil after first 5 hours of operation.

\*\*\* More often in hot (over 85° F: 30° C) weather or dusty operating conditions.

## CHECK TIRE PRESSURES

Tire Pressure should be checked periodically, and maintained at the levels shown in the chart. Note that these pressures may differ slightly from the "Max Inflation" stamped on the side-wall of the tires. The pressures shown provide proper traction, improve cut quality, and extend tire life.

Tire	Pressure
Front	20 psi (138 kPa)
Rear	10 psi (69 kPa)

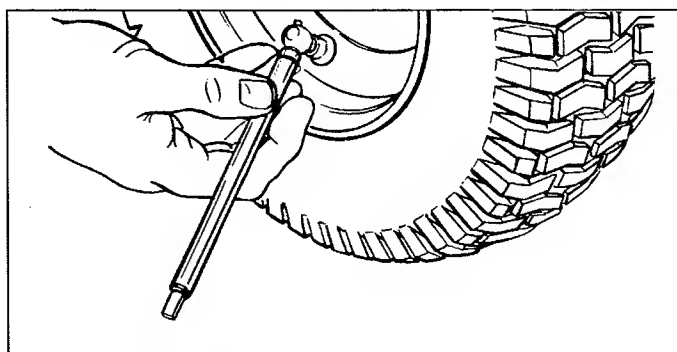


Figure 14. Checking Tire Pressure



## CHECKING / ADDING FUEL

Raise the seat deck and check the fuel tank to be sure there is enough fuel to complete the job. To add fuel:

1. Remove the fuel cap (see A, Figure 15).
2. Fill the tank.  
Do not overfill. Leave room in the tank for fuel expansion. Refer to your engine manual for specific fuel recommendations.
3. Install and hand tighten the fuel cap.

## FUEL FILTER

The fuel filter is located in the fuel line between fuel tank and carburetor (See Figure 15). If filter is dirty or clogged, replace as follows:

1. Disconnect the negative battery cable.
2. Place a container below the filter to catch spilled fuel.
3. Using a pliers, open and slide hose clamps from fuel filter.
4. Remove hoses from filter.
5. Install new filter in proper flow direction in fuel line.
6. Secure with hose clamps.
7. Reconnect the negative battery cable when finished.

## OIL & FILTER CHANGE

Refer to engine owners manual.

## CHECK / CHANGE AIR FILTER

Refer to engine owners manual.

## REPLACE SPARK PLUG

Refer to engine owners manual.

## CHECK TRANSMISSION OIL LEVEL

**NOTE:** Do not open the expansion chambers unless oil is being added.

1. Lift up the seat deck to gain access to the engine compartment.
2. Shine a flashlight on the expansion chambers (F, Figure 15) and observe the oil level. The oil level should be up to the FULL COLD line.
3. If necessary, open the expansion chamber and add Simplicity Multipurpose Hydro Oil. Make sure area around the chambers is free of dust, dirt, or other debris.

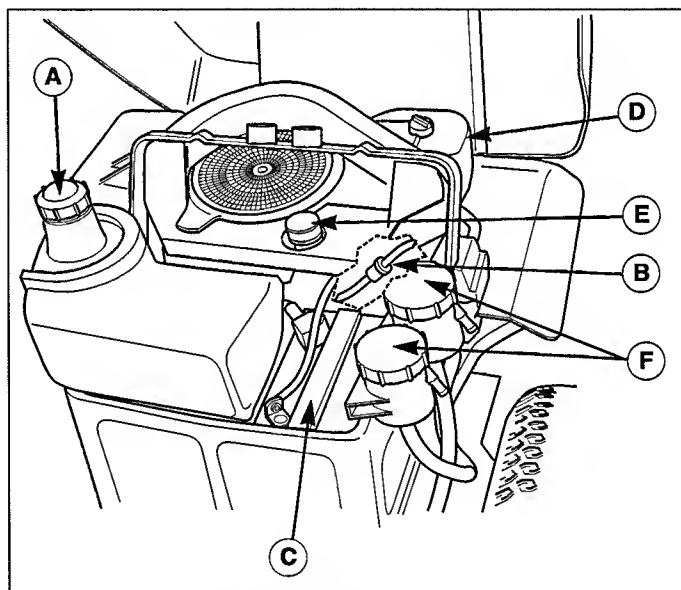
## ⚠ WARNING

Gasoline is highly flammable and must be handled with care. Never fill the tank when the engine is still hot from recent operation. Do not allow open flame, smoking or matches in the area. Avoid over-filling and wipe up any spills.

Do not remove fuel filter when engine is hot, as spilled gasoline may ignite. **DO NOT** spread hose clamps further than necessary. Ensure clamps grip hoses firmly over filter after installation.



Do not use gasoline containing METHANOL, gasohol containing more than 10% ethanol, gasoline additives, premium gasoline, or white gas because engine/fuel system damage could result.



**Figure 15. Engine Compartment (Typical)**

- |                |  |
|----------------|--|
| A. Fuel Cap    | D. Engine Air Filter                   |
| B. Fuel Filter | E. Oil Fill/Check                      |
| C. Battery     | F. Transmission Oil Expansion Chambers |

# Regular Maintenance

## LUBRICATION

Lubricate the unit at the locations shown in Figures 16 through 18 as well as the following lubrication points.

### Grease:



- front axle grease fittings
- steering linkage
- front wheel bushings
- foot pedal
- mower pivots
- mower arbors

Use grease fittings when present. Disassemble parts to apply grease to moving parts when grease fittings are not installed.

Not all greases are compatible. Simplicity "Jiffy Lube" Lithium Grease is recommended, automotive-type lithium grease may be used when this is not available.

### Oil:



- rear frame assembly pivot
- hydro linkage
- seat adjustment assembly
- brake linkage
- Frame pivot points
- mower deck height adjustment linkage

Generally, all moving metal parts should be oiled where contact is made with other parts. Keep oil and grease off belts and pulleys. Remember to wipe fittings and surfaces clean both before and after lubrication.

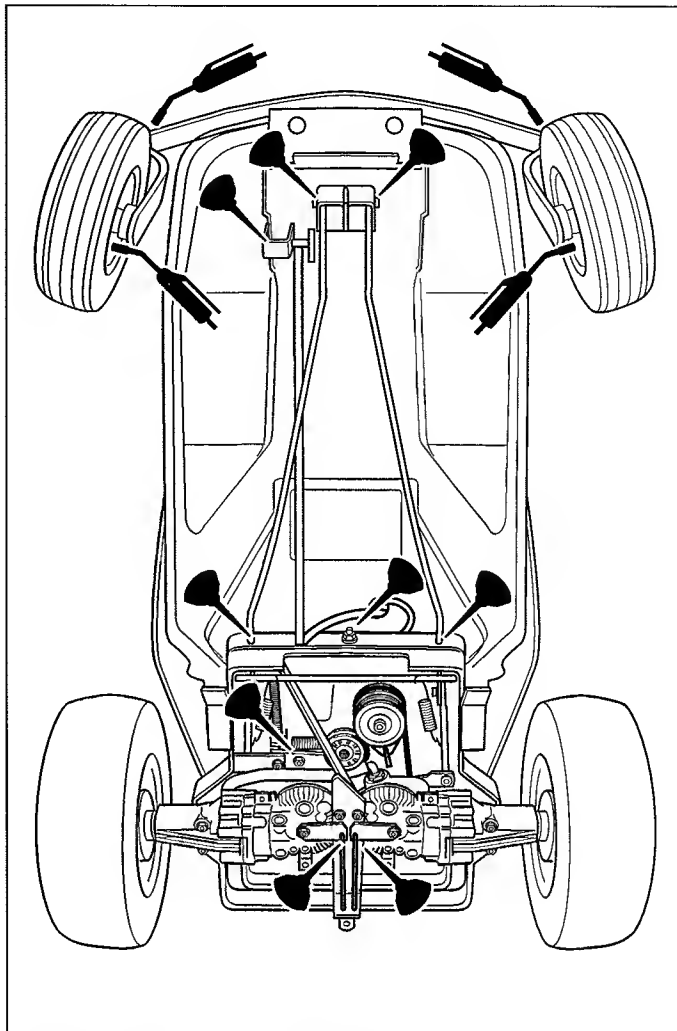


Figure 16. Lubricating Rider

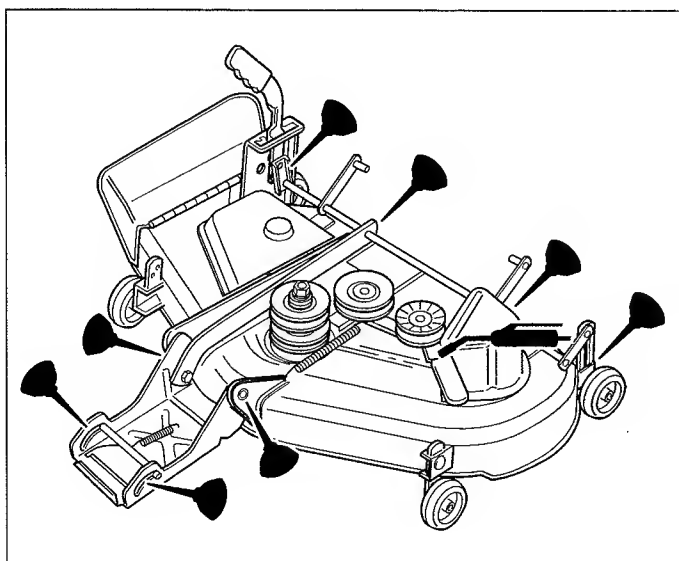


Figure 17. Mower Lubrication (44" Deck Shown)

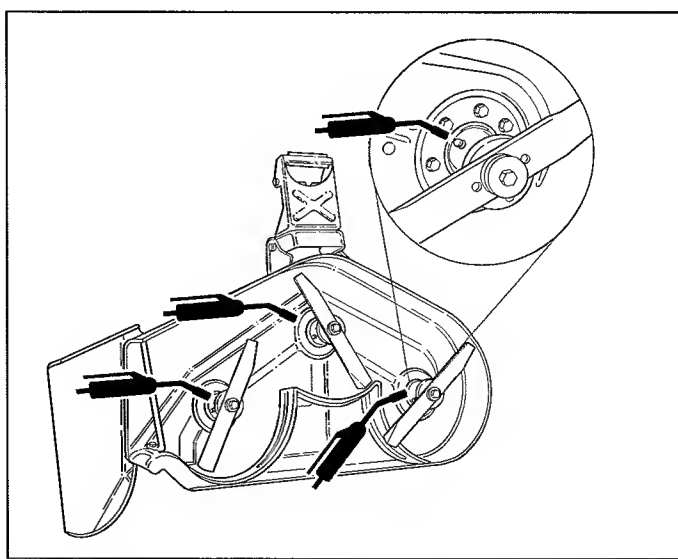


Figure 18. Arbor Lubrication (44" Deck Shown)

### BATTERY MAINTENANCE

#### Checking the Battery Fluid

1. Raise the seat deck to access battery.
2. Remove the battery filler cap (C, Figure 19). Fluid must be even with the split ring full mark. If not, add distilled water.
3. Reinstall the filler cap.

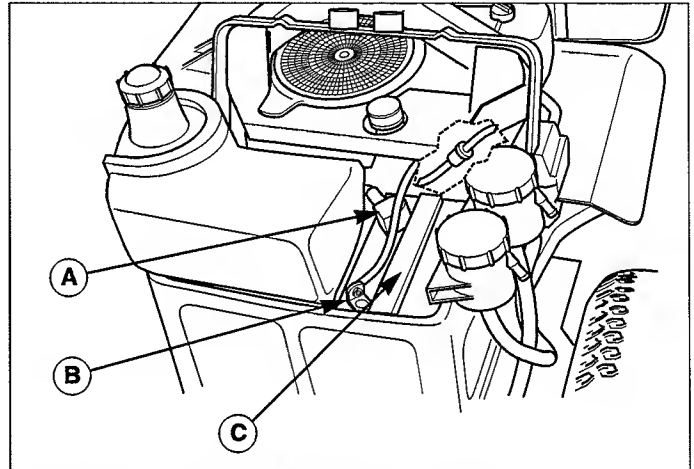
#### Cleaning the Battery and Cables

1. Disconnect the cables from the battery, negative cable first (B, Figure 19).
2. Remove the battery and clean the compartment with a solution of baking soda and water.
3. Clean the battery terminals and cable ends with a wire brush until shiny.
4. Reinstall the battery and reattach the battery cables, positive cable first (see A, Figure 19)
5. Coat the cable ends and battery terminals with petroleum jelly or non-conducting grease.

#### **⚠ WARNING**

Be careful when handling the battery. Avoid spilling electrolyte. Keep flames and sparks away from the battery.

When removing or installing battery cables, disconnect the negative cable **FIRST** and reconnect it **LAST**. If not done in this order, the positive terminal can be shorted to the frame by a tool.



**Figure 19. Checking & Cleaning Battery**

- A. Positive Battery Terminal
- B. Negative Battery Terminal
- C. Battery Cap

## Regular Maintenance

### SERVICING THE MOWER BLADES

#### WARNING

For your personal safety, do not handle the sharp mower blades with bare hands. Careless or improper handling of blades may result in serious injury.

1. Remove mower from the rider. See Mower Installation & Removal.
2. Blades should be sharp and free of nicks and dents. If not, sharpen blades as described in following steps.
3. To remove blade for sharpening, use a wood block to hold blade while removing the blade mounting cap-screw (Figure 20).
4. Use a file to sharpen blade to fine edge. Remove all nicks and dents in blade edge. If blade is severely damaged, it should be replaced.
5. Balance the blade as shown in Figure 21. Center the blade's hole on a nail lubricated with a drop of oil. A balanced blade will remain level.
6. Reinstall each blade with the tabs pointing up toward deck as shown in Figure 22. Secure with a capscrew, spring washer and hex washer (be certain the hex washer is aligned with the hex shaft). Use a wooden block to prevent blade rotation and torque capscrews to 45-55 ft. lbs. (61-75 N.m.).

#### WARNING

For your personal safety, blade mounting capscrews must each be installed with a hex washer and spring washer, then securely tightened. Torque blade mounting capscrew to 45-55 ft. lbs. (61-75 N.m.)

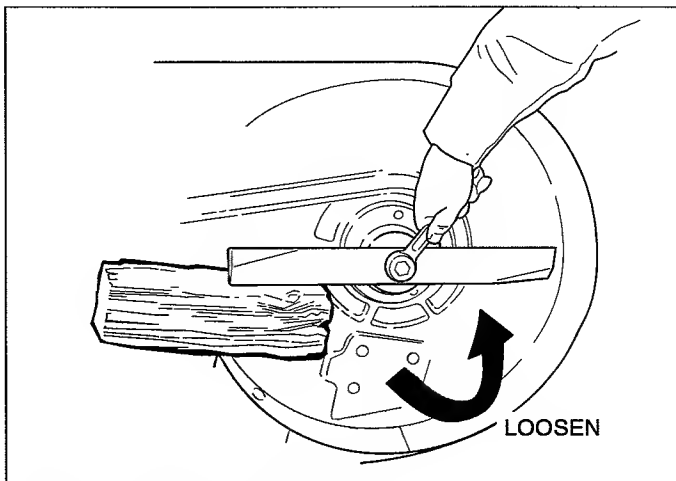


Figure 20. Removing the Blade

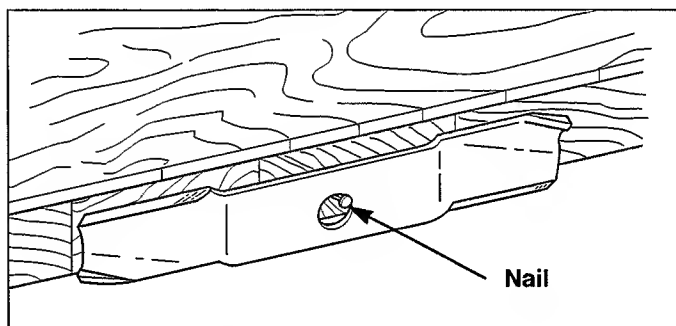


Figure 21. Balancing The Blade

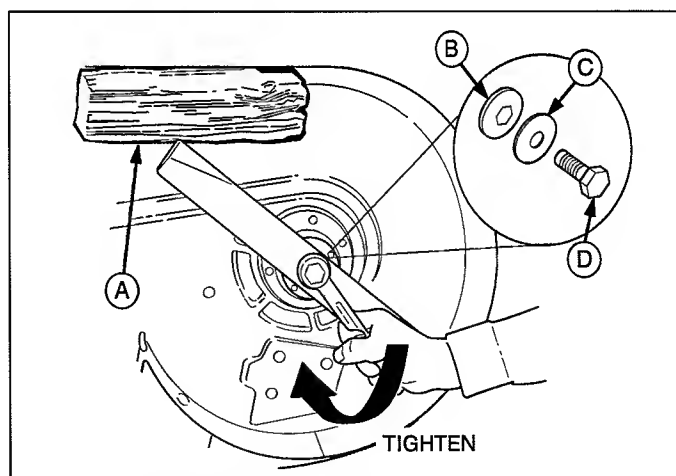


Figure 22. Installing The Blade

- |                   |                  |
|-------------------|------------------|
| A. 4x4 Wood Block | C. Spring Washer |
| B. Hex Washer     | D. Blade Bolt    |



# Troubleshooting Adjustments & Service

## TROUBLESHOOTING

While normal care and regular maintenance will extend the life of your equipment, prolonged or constant use may eventually require that service be performed to allow it to continue operating properly.

The troubleshooting guide below lists the most common problems, their causes and remedies.

See the information on the following pages for instructions on how to perform most of these minor adjustments and service repairs yourself. If you prefer, all of these procedures can be performed for you by your local authorized dealer.

## ⚠ WARNING

To avoid serious injury, perform maintenance on the tractor or mower only when the engine is stopped and the parking brake engaged.

Always remove the ignition key, disconnect the spark plug wire and fasten it away from the plug before beginning the maintenance, to prevent accidental starting of the engine.

## TROUBLESHOOTING THE RIDER

PROBLEM	CAUSE	REMEDY
Engine will not turnover or start.	<ol style="list-style-type: none"> <li>1. Clutch/Brake pedal not depressed.</li> <li>2. PTO (electric clutch) switch in ON position.</li> <li>3. Out of fuel.</li> <li>4. Engine flooded.</li> <li>5. Circuit breaker tripped.</li> <li>6. Battery terminals require cleaning.</li> <li>7. Battery discharged or dead.</li> <li>8. Wiring loose or broken.</li> <li>9. Solenoid or starter motor faulty.</li> <li>10. Safety interlock switch faulty.</li> <li>11. Spark plug(s) faulty, fouled or incorrectly gapped.</li> <li>12. Water in fuel.</li> <li>13. Gas is old or stale.</li> </ol>	<ol style="list-style-type: none"> <li>1. Depress pedal.</li> <li>2. Place in OFF position.</li> <li>3. If engine is hot, allow it to cool, then refill the fuel tank.</li> <li>4. Move throttle control out of CHOKE position.</li> <li>5. Wait one minute for automatic reset. Replace if defective.</li> <li>6. Clean the battery terminals</li> <li>7. Recharge or replace.</li> <li>8. Visually check wiring &amp; replace broken or frayed wires. Tighten loose connections.</li> <li>9. Repair or replace. See authorized service dealer</li> <li>10. Replace as needed. See authorized service dealer.</li> <li>11. Clean and gap or replace. See engine manual.</li> <li>12. Drain fuel &amp; refill with fresh fuel.</li> <li>13. Drain fuel &amp; replace with fresh fuel.</li> </ol>
Engine starts hard or runs poorly.	<ol style="list-style-type: none"> <li>1. Fuel mixture too rich.</li> <li>2. Spark plug faulty, fouled, or incorrectly gapped.</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean air filter. Check choke adjustment (throttle control).</li> <li>2. Clean and gap or replace. (See engine manual.)</li> </ol>
Engine knocks.	<ol style="list-style-type: none"> <li>1. Low oil level.</li> <li>2. Using wrong grade oil.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check/add oil as required.</li> <li>2. See engine manual.</li> </ol>
Excessive oil consumption.	<ol style="list-style-type: none"> <li>1. Engine running too hot.</li> <li>2. Using wrong weight oil.</li> <li>3. Too much oil in crankcase.</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean engine fins, blower screen and air cleaner.</li> <li>2. See engine manual.</li> <li>3. Drain excess oil.</li> </ol>
Engine exhaust is black.	<ol style="list-style-type: none"> <li>1. Dirty air filter.</li> <li>2. Engine throttle control is in choke position.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace air filter. See engine manual.</li> <li>2. Change throttle control position.</li> </ol>

# Troubleshooting, Adjustment & Service

## Rider Troubleshooting Continued.

PROBLEM	CAUSE	REMEDY
Engine runs, but rider will not drive.	<ol style="list-style-type: none"> <li>1. Transmission release lever(s) in "push" position.</li> <li>2. Belt is broken.</li> <li>3. Drive belt slips.</li> <li>4. Brake is not fully released.</li> </ol>	<ol style="list-style-type: none"> <li>1. Move into drive position.</li> <li>2. See Drive Belt Replacement.</li> <li>3. See problem and cause below.</li> <li>4. See authorized service dealer</li> </ol>
Rider drive belt slips.	<ol style="list-style-type: none"> <li>1. Clutch is out of adjustment.</li> <li>2. Pulleys or belt greasy or oily.</li> <li>3. Belt stretched or worn.</li> <li>4. Idler pulley pivot bracket "frozen" in declutched position.</li> </ol>	<ol style="list-style-type: none"> <li>1. See authorized service dealer.</li> <li>2. Clean as required.</li> <li>3. Replace belt.</li> <li>4. Remove idler pulley, clean and lubricate.</li> </ol>
Brake will not hold.	<ol style="list-style-type: none"> <li>1. Brake is incorrectly adjusted.</li> <li>2. Internal brake disc on transaxle worn.</li> </ol>	<ol style="list-style-type: none"> <li>1. See Brake Adjustment.</li> <li>2. See authorized service dealer</li> </ol>
Rider steers hard or handles poorly.	<ol style="list-style-type: none"> <li>1. Steering linkage is loose.</li> <li>2. Improper tire inflation.</li> <li>3. Spindle bearings dry.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check and tighten any loose connections.</li> <li>2. See Regular Maintenance Section.</li> <li>3. Grease spindles. See Lubrication Section</li> </ol>
Drive belt does not stop when clutch/brake pedal depressed.	<ol style="list-style-type: none"> <li>1. Belt stops or belt tension out of adjustment.</li> </ol>	<ol style="list-style-type: none"> <li>1. See authorized service dealer.</li> </ol>

## TROUBLESHOOTING THE MOWER

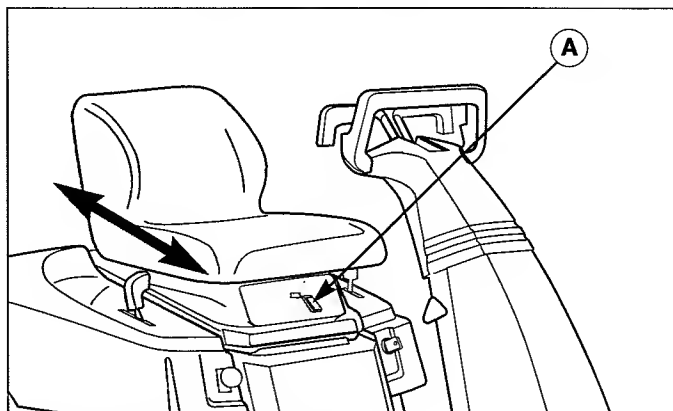
PROBLEM	CAUSE	REMEDY
Mower will not raise.	<ol style="list-style-type: none"> <li>1. Lift linkage not properly attached or damaged.</li> </ol>	<ol style="list-style-type: none"> <li>1. See authorized service dealer for repair.</li> </ol>
Mower cut is uneven.	<ol style="list-style-type: none"> <li>1. Mower not leveled properly.</li> <li>2. Rider tires not inflated equally or properly.</li> </ol>	<ol style="list-style-type: none"> <li>1. See Mower Adjustment.</li> <li>2. See Regular Maintenance Section.</li> </ol>
Mower cut is rough looking.	<ol style="list-style-type: none"> <li>1. Engine speed too slow.</li> <li>2. Ground speed too fast.</li> <li>3. Blades are dull.</li> <li>4. Mower drive belt slipping because it is oily or worn.</li> <li>5. Blades not properly fastened to arbors.</li> </ol>	<ol style="list-style-type: none"> <li>1. Set throttle to full.</li> <li>2. Decrease Ground Speed.</li> <li>3. Sharpen or replace blades. See Mower Blade Service.</li> <li>4. Clean or replace belt as necessary.</li> <li>5. See Servicing the Mower Blades.</li> </ol>
Engine stalls easily with mower engaged.	<ol style="list-style-type: none"> <li>1. Engine speed too slow.</li> <li>2. Ground speed too fast.</li> <li>3. Cutting height set too low.</li> <li>4. Discharge chute jamming with cut grass.</li> </ol>	<ol style="list-style-type: none"> <li>1. Set to full throttle.</li> <li>2. Decrease Ground Speed.</li> <li>3. Cut tall grass at maximum cutting height during first pass.</li> <li>4. Cut grass with discharge pointing toward previously cut area.</li> </ol>
Excessive mower vibration.	<ol style="list-style-type: none"> <li>1. Blade mounting screws are loose.</li> <li>2. Mower blades, arbors, or pulleys are bent.</li> <li>3. Mower blades are out of balance.</li> <li>4. Belt installed incorrectly.</li> </ol>	<ol style="list-style-type: none"> <li>1. Tighten to 45-55 ft.lbs. (61-75 N.m.).</li> <li>2. Check and replace as necessary.</li> <li>3. Remove, sharpen, and balance blades. See Maintenance Section.</li> <li>4. Reinstall Correctly.</li> </ol>
Excessive belt wear or breakage.	<ol style="list-style-type: none"> <li>1. Bent or rough pulleys.</li> <li>2. Using incorrect belt.</li> </ol>	<ol style="list-style-type: none"> <li>1. Repair or replace.</li> <li>2. Replace with correct belt.</li> </ol>
Mower drive belt slips or fails to drive.	<ol style="list-style-type: none"> <li>1. Idler pulley spring broken or not properly attached.</li> <li>2. Mower drive belt broken.</li> </ol>	<ol style="list-style-type: none"> <li>1. Repair or replace as needed.</li> <li>2. Replace drive belt.</li> </ol>

### **WARNING**

To avoid serious injury, perform adjustments only with engine stopped, key removed and rider on level ground.

### **SEAT ADJUSTMENT**

The seat can be adjusted forward and back. Move the Seat Adjustment Lever (A, Figure 23) to the LEFT, position the seat as desired, and then release the lever to lock the seat in position.

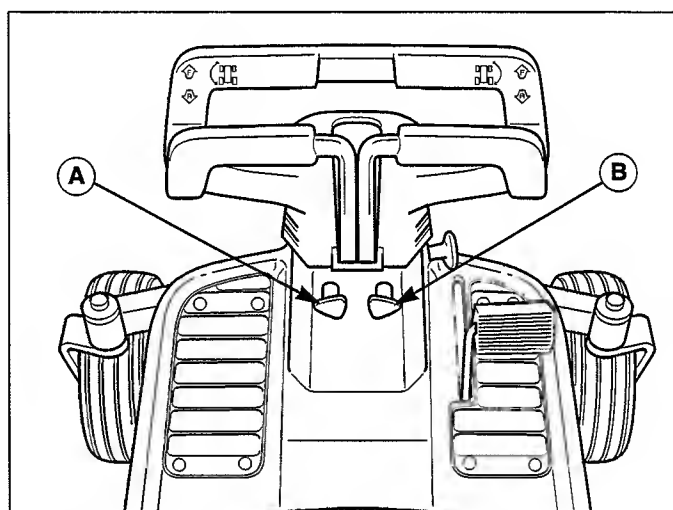


**Figure 23. Seat Adjustment**  
A. Seat Adjustment Lever

### **TOP SPEED ADJUSTMENT KNOBS**

If the rider veers to the right or left when the ground speed control levers are in the maximum forward position, the top speed of each of these levers can be balanced (lowered) by turning the adjustment knobs (see A & B, Figure 24).

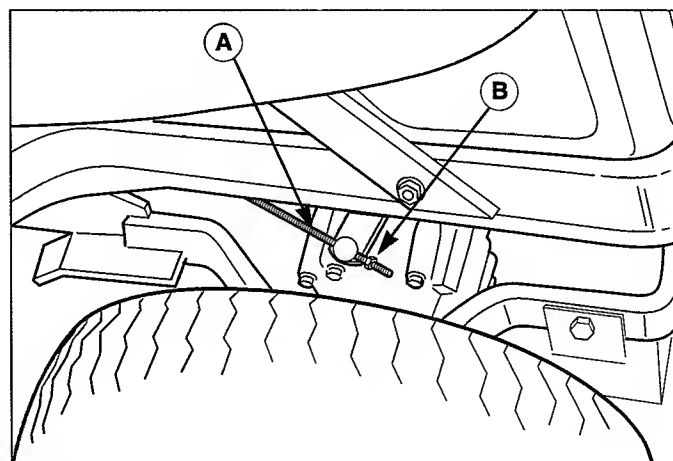
To reduce the speed of a transmission, turn its corresponding knob **CLOCKWISE** several turns to lower the top speed of a wheel, and **COUNTER-CLOCKWISE** to increase the top speed of a wheel which has been previously lowered.



**Figure 24. Top Speed Adjustment Knobs**  
A. Left Drive Wheel  
B. Right Drive Wheel

### **BRAKE ADJUSTMENT**

1. Lift up the seat deck.
2. Release the parking brake and move the brake rod back and forth (A, Figure 25). The rod should have approximately 1/8" of back and forth travel.
3. Adjust the adjustment nut (B, Figure 25) until correct travel is achieved.
4. Repeat on both sides.



**Figure 25. Brake Adjustment**  
A. Brake Rod  
B. Adjustment Nut

# Troubleshooting, Adjustment & Service

## ⚠ WARNING

Before checking mower, shut off PTO and engine. Allow all moving parts to stop. Remove ignition key, then disconnect the spark plug wire and fasten it away from the spark plug.

## MOWER ADJUSTMENTS

### Leveling The Mower

If the cut is uneven, the mower may need leveling. Unequal or improper tire pressure may also cause an uneven cut. Tire pressure should be as follows:

- Front: 20 psi (138 kPa)
- Rear: 10 psi (69 kPa)

### Side to Side Leveling

1. With the mower installed, place the rider on a smooth, level surface such as a concrete floor. Turn the front wheels straight forward.
2. Check for bent blades and replace if necessary.
3. Place the mower in high-cut position. Arrange the mower blades so that they are pointing from side-to-side (Figure 26).
4. See Figure 26. Measure the distance between the outside tips of each blade and the ground. If there is more than 1/8" (3mm) difference between the measurements on each side, proceed to step 5. If the difference is 1/8" (3mm) or less, proceed to Front TO Back Leveling.
5. See Figure 27. Loosen the outside nut (A) and tap-tite screw (C), then turn the eccentric nut (B) to raise or lower the left side of the deck. When the mower deck is level, hold the eccentric nut while tightening the outside nut. Tighten the tap-tite screw (C).

### Front To Back Leveling

1. Arrange the blades so they face front-to-back (see Figure 28).
2. See Figure 28. Measure the distance from the ground to the front and rear tips of each blade. The measurement should be equal for both blades. Front tips should be equal to rear tips or within 1/8" higher. If not, proceed to step 3.
3. See Figure 29. Loosen the outside nut (A) and turn the eccentric nut (B) to raise or lower the rear of the deck. When the mower deck is level, hold the eccentric nut while tightening the outside nut.

**NOTE:** If mower handle drops out of cutting height quadrant, turn adjustment nut (C, Figure 29) clockwise to increase spring tension. DO NOT tighten nut all the way so that spring is solid.

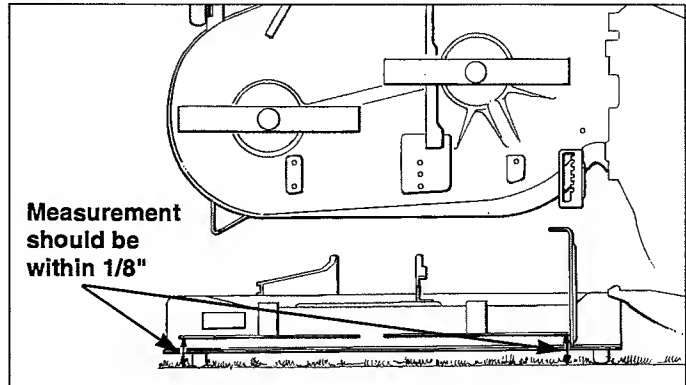


Figure 26. Side-to-Side Leveling (38" Deck Shown)

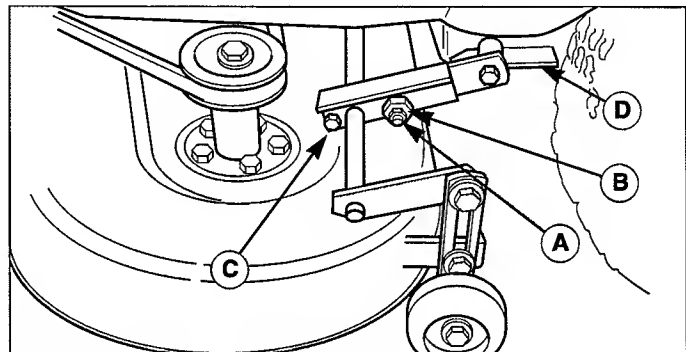


Figure 27. Side-to-Side Adjustment

- A. Outside Nut
- B. Eccentric Nut
- C. Tap-tite Screw
- D. Ramp

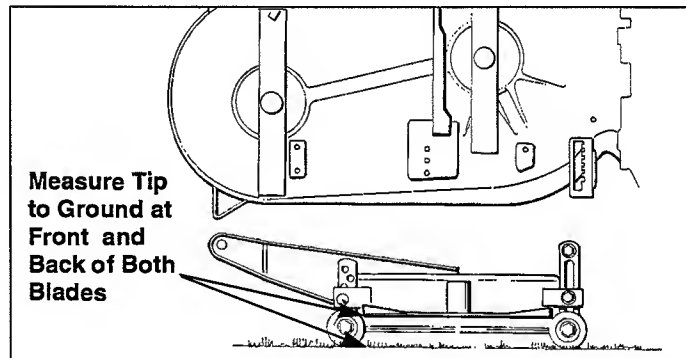


Figure 28. Front-to-Back Leveling (38" Deck Shown)

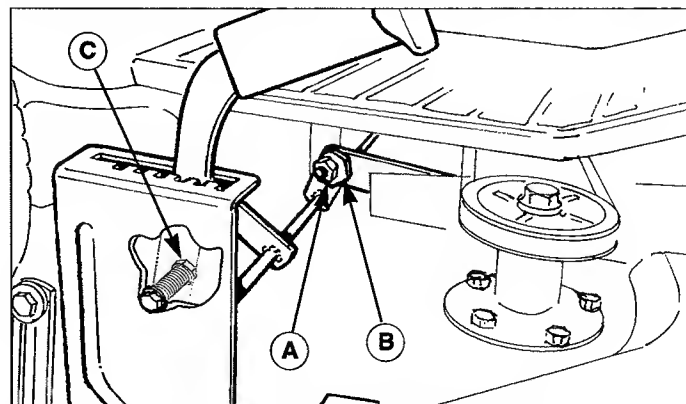


Figure 29. Front-to-Back Adjustment Nut

- A. Outside Nut
- B. Eccentric Nut
- C. Adjustment Nut



## BLADE BRAKE CHECK

Mower blades and mower drive belt should come to a complete stop within five seconds after electric PTO switch is turned off.

1. With rider in neutral, PTO disengaged and operator in seat, start the engine.
2. Look over the left-hand footrest at the mower drive belt. Engage the PTO and wait several seconds. Disengage the PTO and check the amount of time it takes for the mower drive belt to stop.
3. If mower drive belt does not stop within five seconds, see your dealer.

## MOWER BELT REPLACEMENT



To avoid damaging belts, **DO NOT PRY BELTS OVER PULLEYS.**

### 38" Mower Drive Belt Replacement

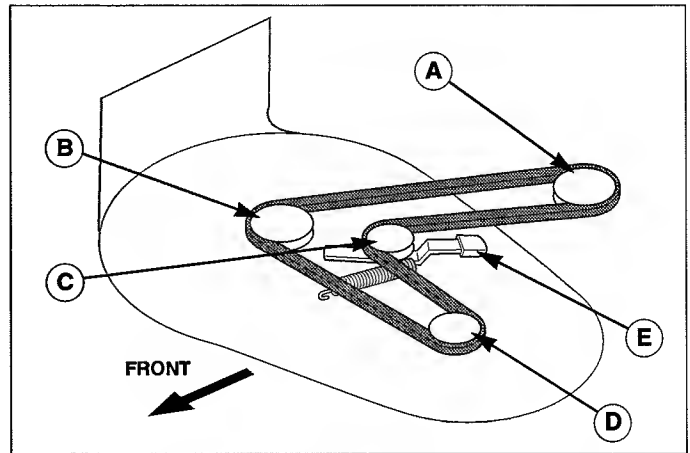
1. Park the rider on a level surface. Disengage the PTO, turn off the engine and set the parking brake. Remove the key.
2. Remove the mower deck from the rider. (See Mower Installation & Removal procedure in the Operation section of this manual.)
3. Loosen the idler pulley and arbor belt guides, and remove the belt.
4. Install the new belt as shown in Figure 30.
5. Tighten the idler pulley and arbor belt guides.
6. Reinstall the mower. See Mower Installation & Removal

### 44" Mower PTO Belt Replacement

1. Park the rider on a level surface. Disengage the PTO, turn off the engine and set the parking brake. Remove the key.
2. Release belt tension and remove the PTO belt from the PTO pulley.
3. Remove the belt from the remaining deck pulleys.  
*Note: It is not necessary to remove the mower deck.*
4. Install the new belt as shown in Figure 31.

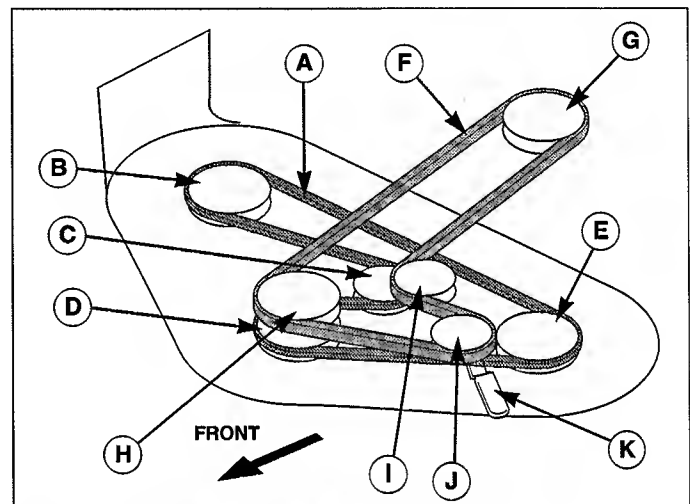
### 44" Arbor Drive Belt Replacement

1. Park the rider on a level surface. Disengage the PTO, turn off the engine and set the parking brake. Remove the key.
2. Remove the mower deck from the rider. (See Mower Installation & Removal procedure in the Operation section of this manual.)
3. Remove the PTO belt.
4. Remove the right-side belt cover.



**Figure 30. 38" Mower Belt Routing**

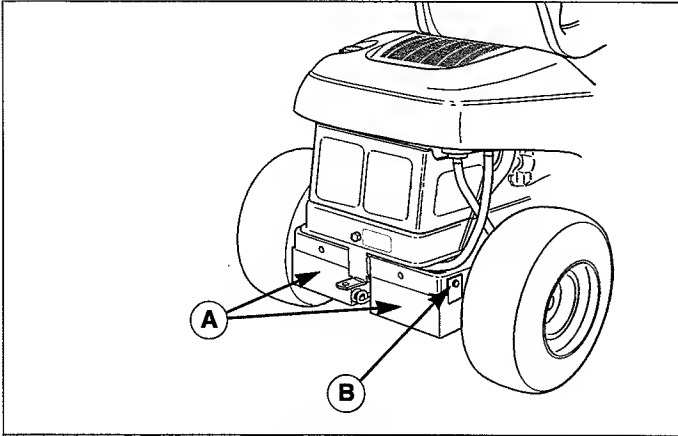
- |                       |                      |
|-----------------------|----------------------|
| A. Engine PTO Pulley  | D. Left Arbor Pulley |
| B. Right Arbor Pulley | E. Idler Pulley Arm  |
| C. Idler Pulley       |                      |



**Figure 31. 44" Mower & Mower PTO Belt Routing**

- |                        |                          |
|------------------------|--------------------------|
| A. Arbor Belt          | G. Engine PTO Pulley     |
| B. Right Arbor Pulley  | H. Mower Drive Pulley    |
| C. Arbor Idler Pulley  | I. Mower Idler Pulley    |
| D. Center Arbor Pulley | J. Backside Idler Pulley |
| E. Left Arbor Pulley   | K. Idler Pulley Arm      |
| F. Mower Drive Belt    |                          |

5. Remove the left side belt cover.
6. Use a spring puller of small rope loop to release the arbor drive belt idler pulley arm.
7. Loosen the idler pulley bolt.
8. Remove the PTO belt idler arm spring.
9. Remove and replace the old belt (see Figure 31).
10. Reinstall:
  - Idler pulley
  - PTO belt idler spring
  - Arbor drive belt idler arm spring
  - Left and right side belt covers
  - PTO belt
  - Mower deck



**Figure 32. Rear Weight Removal**

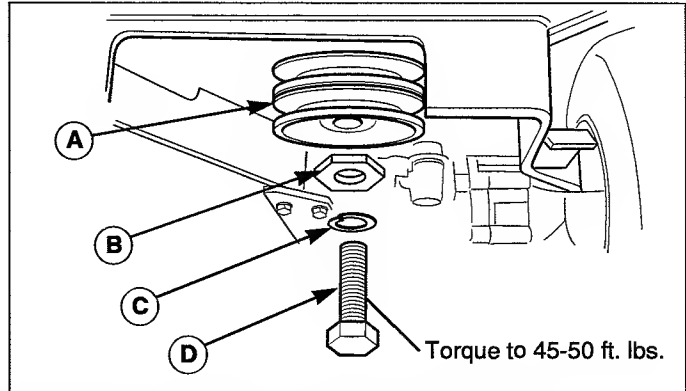
- A. Rear Weights
- B. Bolt

## RIDER DRIVE BELT REPLACEMENT



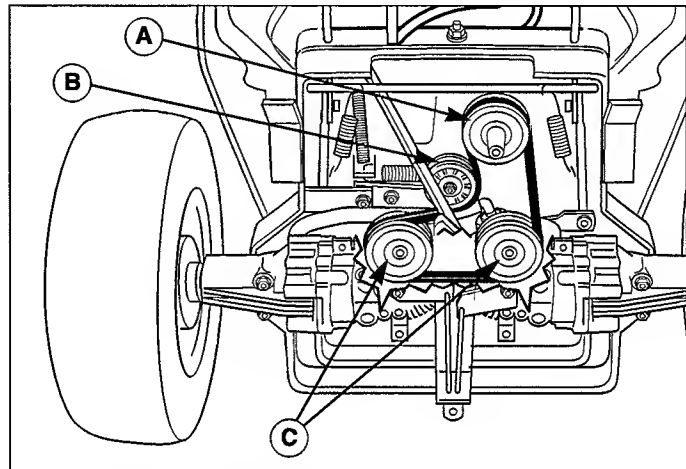
**To avoid damaging belts, DO NOT PRY BELTS OVER PULLEYS.**

1. Park the rider on a level surface. Disengage the PTO, turn off the engine and set the parking brake, then remove the key.
2. Remove the mower deck from the rider. See Mower Installation & Removal.
3. Support the rear weights (A, Figure 32) with a floor jack.
4. Remove the bolt (B, Figure 32) from one of the weights (see A, Figure 32). Lower the jack and remove the weight. Repeat with the other weight.
5. Unplug the wiring harness from the PTO clutch (A, Figure 33). Remove the PTO clutch as shown in Figure 33.
6. Remove the drive belt by sliding the belt between the pulley and the belt guides. Carefully slide the belt over the transmission pulleys.
7. Remove the old belt and install a new belt as shown in Figure 34.
8. Reinstall the PTO clutch. Torque the PTO clutch capscREW (D, Figure 33) to 45-50 ft. lbs.
9. Release the parking brake and adjust the belt guides pictured in Figure 35 (belt guide clearance points are indicated with arrows). There should be 1/16"-1/8" between the belt and the belt guides.



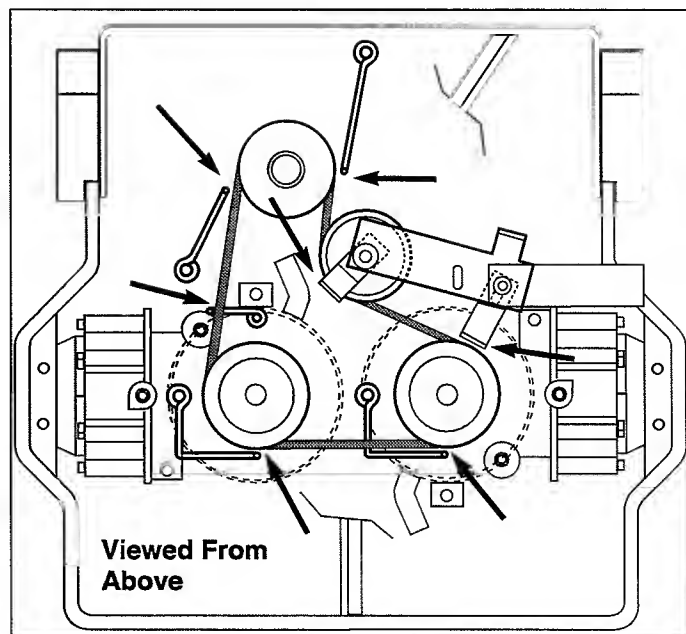
**Figure 33. PTO (Electric Clutch) Assembly**

- A. PTO Clutch
- B. Hex Washer
- C. Lockwasher
- D. Capscrew



**Figure 34. Drive Belt Routing**

- A. Engine Pulley
- B. Idler Pulley
- C. Transmission Pulleys



**Figure 35. Drive Belt Guide Positions**

### BATTERY SERVICE

#### WARNING

Keep open flames and sparks away from the battery; the gasses coming from it are highly explosive. Ventilate the battery well during charging.

#### Checking Battery Voltage

A voltmeter can be used to determine condition of battery. When engine is off, the voltmeter shows battery voltage, which should be 12 volts. When engine is running, the voltmeter shows voltage of charging circuit which normally is 13 to 14 volts.

A dead battery or one too weak to start the engine may not mean the battery needs to be replaced. For example, it may mean that the alternator is not charging the battery properly. If there is any doubt about the cause of the problem, see your dealer. If you need to replace the battery, follow the steps under Cleaning the Battery & Cables in the Regular Maintenance Section.

#### WARNING

Do not attempt to charge a frozen battery. Allow the battery to warm to 60° F (15.5° C) before placing on charger.

### CHARGING A COMPLETELY DISCHARGED BATTERY

1. Be aware of all the safety precautions you should observe during the charging operation. If you are unfamiliar with the use of a battery charger and hydrometer, have the battery serviced by your dealer.
2. Add distilled water sufficient to cover the plate (fill to the proper level near the end of the charge). If the battery is extremely cold, allow it to warm before adding water because the water level will rise as it warms. Also, an extremely cold battery will not accept a normal charge until it becomes warm.
3. Always unplug or turn the charger off before attaching or removing the clamp connections.
4. Carefully attach the clamps to the battery in proper polarity (usually red to [+] positive and black to [-] negative).
5. While charging, periodically measure the temperature of the electrolyte. If the temperature exceeds 125° F (51.6° C), or if violent gassing or spewing of electrolyte occurs, the charging rate must be reduced or temporarily halted to prevent battery damage.
6. Charge the battery until fully charged (i.e. until the specific gravity of the electrolyte is 1.250 or higher and the electrolyte temperature is at least 60° F). The best method of making certain a battery is fully charged, but not over charged, is to measure the specific gravity of a cell once per hour. The battery is fully charged when the cells are gassing freely at low charging rate and less than 0.003 change in specific gravity occurs over a three hour period.

### JUMP STARTING WITH AUXILIARY (BOOSTER) BATTERY

Jump starting is not recommended. However, if it must be done, follow these directions. Both booster and discharged batteries should be treated carefully when using jumper cables. Follow the steps below EXACTLY, being careful not to cause sparks. Refer to Figure 36.

1. Both batteries must be of the same voltage.
2. Position the vehicle with the booster battery adjacent to the vehicle with the discharged battery so that booster cables can be connected easily to the batteries in both vehicles. Make certain vehicles do not touch each other.
3. Wear safety glasses and shield eyes and face from batteries at all times. Be sure vent caps are tight. Place damp cloth over vent caps on both batteries.
4. Connect positive (+) cable to positive post of discharged battery (wired to starter or solenoid).
5. Connect the other end of same cable to same post marked positive (+) on booster battery.
6. Connect the second cable negative (-) to other post of booster battery.
7. Make final connection on engine block of stalled vehicle away from battery. Do not lean over batteries.
8. Start the engine of the vehicle with the booster battery. Wait a few minutes, then attempt to start the engine of the vehicle with the discharged battery.
9. If the vehicle does not start after cranking for thirty seconds, STOP PROCEDURE. More than thirty seconds seldom starts the engine unless some mechanical adjustment is made.
10. After starting, allow the engine to return to idle speed. Remove the cable connection at the engine or frame. Then remove the other end of the same cable from the booster battery.
11. Remove the other cable by disconnecting at the discharged battery first and then disconnect the opposite end from the booster battery.
12. Discard the damp cloths that were placed over the battery vent caps.

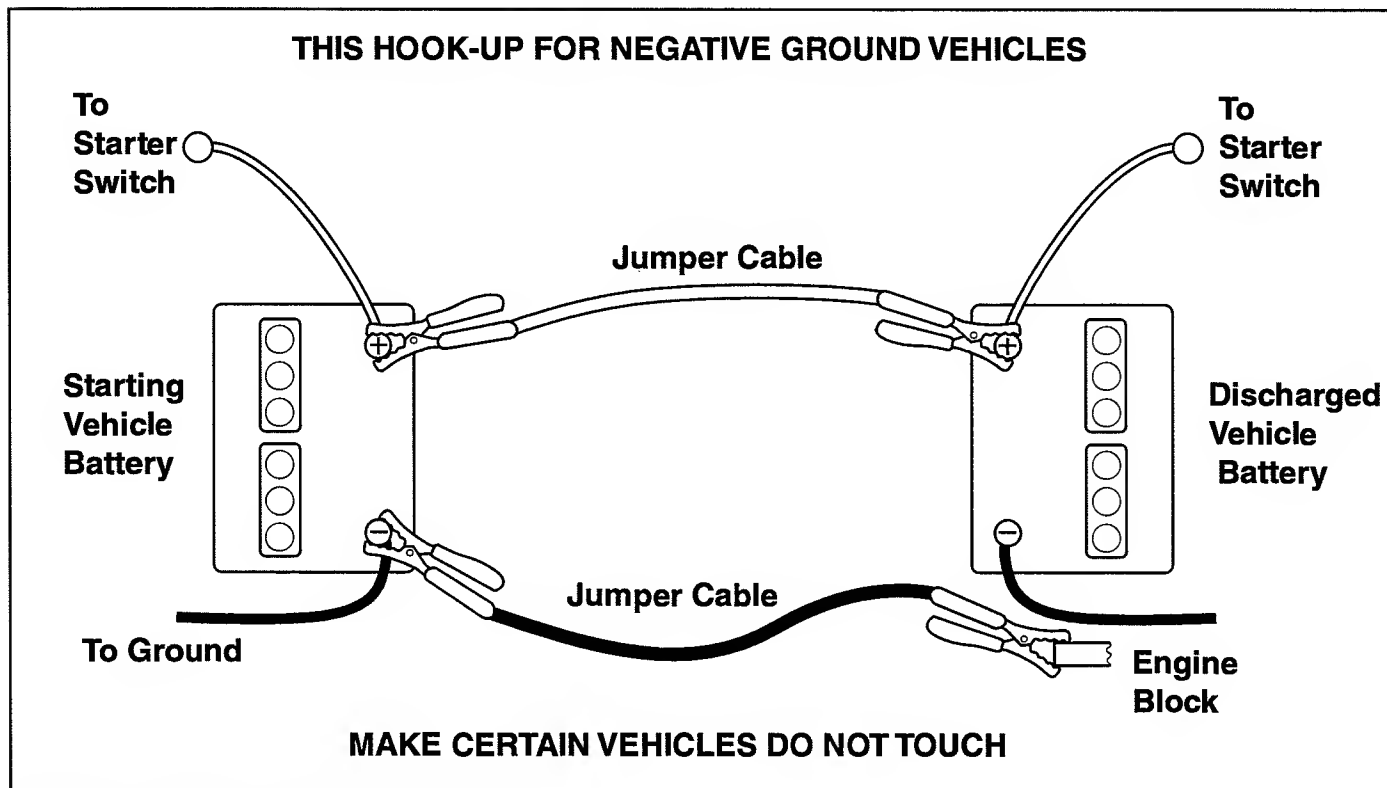


Figure 36. Battery Jump Starting Diagram

### **⚠ WARNING**

Any procedure other than the preceding could result in:

- (1) personal injury caused by electrolyte squirting out the battery vents,
- (2) personal injury or property damage due to battery explosion,
- (3) damage to the charging system of the booster vehicle or of the immobilized vehicle.

Do not attempt to jump start a vehicle having a frozen battery because the battery may rupture or explode. If a frozen battery is suspected, examine all fill vents on the battery. If ice can be seen or if the electrolyte fluid cannot be seen, do not attempt to start with jumper cables as long as the battery remains frozen.

### **⚠ WARNING**

For your personal safety, use extreme care when jump starting. Never expose battery to open flame or electric spark – battery action generates hydrogen gas which is flammable and explosive. Do not allow battery acid to contact skin, eyes, fabrics, or painted surfaces. Batteries contain a sulfuric acid solution which can cause serious personal injury or property damage.

When removing or installing battery cables, disconnect the negative cable **FIRST** and reconnect it **LAST**. If not done in this order, the positive terminal can be shorted to the frame by a tool.

To avoid engine damage, do not disconnect battery while engine is running. Be sure terminal connections are tight before starting.



# Specifications

## ENGINES:

### 16 HP Kohler Command™

<b>Make/Model</b>	Kohler Command™ CV16S
<b>Horsepower</b>	16 HP @ 3600 rpm
<b>Cylinders/Type</b>	Single Cylinder, 4 cycle, air cooled
<b>Bore</b>	3.55 in (90 mm)
<b>Stroke</b>	2.64 in (67 mm)
<b>Displacement</b>	26.0 Cu. in (426 cc)
<b>Construction</b>	Overhead Valve, Cast-Iron Sleeve, Aluminum Crankcase, Hydraulic Valve Lifters
<b>Electrical System</b>	12 Volt, 15 amp output Alternator Regulated Battery: 12 Volt, 340 Cold Cranking amps 41 Min. Reserve Capacity
<b>Ignition</b>	High Energy Electronic Ignition
<b>Air Cleaner</b>	Ducted Paper Cartridge & Foam Pre-Cleaner
<b>Lubrication</b>	Full Pressure Lube w/Oil Filter
<b>Oil Capacity</b>	4.0 Pints w/Filter (1.9 L)
<b>Fuel Tank</b>	High-Density Transparent Polyethylene Capacity: 2.0 Gallons (7.5 L)
<b>Muffler</b>	Quiet Compact, Low Back Pressure

### 14 HP Kohler Command™

<b>Make/Model</b>	Kohler Command™ CV14S
<b>Horsepower</b>	14 HP @ 3600 rpm
<b>Cylinders/Type</b>	Single Cylinder, 4 cycle, air cooled
<b>Bore</b>	3.43 in (87 mm)
<b>Stroke</b>	2.64 in (67 mm)
<b>Displacement</b>	24.3 Cu. in (398 cc)
<b>Construction</b>	Overhead Valve, Cast-Iron Sleeve, Aluminum Crankcase, Hydraulic Valve Lifters
<b>Electrical System</b>	12 Volt, 15 amp output Alternator Regulated Battery: 12 Volt, 340 Cold Cranking amps 41 Min. Reserve Capacity
<b>Ignition</b>	High Energy Electronic Ignition
<b>Air Cleaner</b>	Ducted Paper Cartridge & Foam Pre-Cleaner
<b>Lubrication</b>	Full Pressure Lube w/Oil Filter
<b>Oil Capacity</b>	4 Pints w/Filter (1.9 L)
<b>Fuel Tank</b>	High-Density Transparent Polyethylene Capacity: 2.0 Gallons (7.5 L)
<b>Muffler</b>	Quiet Compact, Low Back Pressure

## CHASSIS:

<b>Frame</b>	Heavy 14 Gauge, Deep Drawn Steel
<b>Seat Deck</b>	Lightweight Polymer Alloy
<b>Seat</b>	High Back, Molded Type w/Foam Cushion and Quick Adjust
<b>Footrests</b>	Full Length, Deep Well
<b>Front Wheels:</b>	Type — Pneumatic Tubeless Tread — Straight Tread Size — 13 x 5.0 - 6 Inflation Pressure — 20 psi (138 kPa)
<b>Rear Wheels:</b>	Type — Pneumatic Tubeless Tread — Turf Pattern Size — 18 x 8.5 - 8 Inflation Pressure — 10 psi (69 kPa)

## TRANSMISSION:

### Hydro Models

<b>Type</b>	Dual Eaton Hydrostatic Transmissions
<b>Control</b>	Twin Hand Control Levers
<b>Hydraulic Fluid</b>	Simplicity Multipurpose Oil
<b>Speeds @ 3400 rpm</b>	Forward: 0-5.5 MPH (8.9 km/h) Reverse: 0-3.9 MPH (6.3 km/h)
<b>Axle Shaft</b>	Tapered
<b>Torque Output</b>	160 ft. lbs. (Continuous)
<b>Maximum Weight</b>	400 lbs. (on Axle)

## CONTROLS:

<b>Steering</b>	Zero-Turn Ground Speed Control Levers with independent transmissions
<b>Clutch/Brake</b>	Combination Clutch/Brake pedal with Parking Brake Lock (Foot/Hand Activated)
<b>PTO Clutch</b>	Electric PTO Switch control on Seat Deck
<b>Ignition Switch</b>	Three position Key Switch on Seat Deck
<b>Throttle/Choke Lever</b>	Combined Throttle/Choke lever on Seat Deck

## DIMENSIONS

<b>Height</b>	43.5 in (110.5 cm)
<b>Width</b>	41 in (104 cm)
<b>Length</b>	61.5 in (156 cm)
<b>Wheel Base</b>	43.75 in (111 cm)
<b>Net Weight</b>	620 lbs. (281 kg)

## MOWER:

### 44" Mower Deck

<b>Thickness</b>	12 Ga.
<b>Effective Cut Width</b>	44 in Mower - 44 in (111.8 cm)
<b>Overall Width</b>	With Deflector — 56 in (142.2 cm) With Turbo — 58 in (147 cm)
<b>Weight</b>	107 lbs. (49 kg)
<b>Cutting Height</b>	Variable Between 1.25—4 in. (3.2—10.2 cm)
<b>Cutting Width</b>	44" in (112 cm)
<b>Blade Arrangement</b>	Three Staggered Blades
<b>Mower Drive</b>	V-Belt from Rider PTO Electric Clutch
<b>Spindle Bearings</b>	Sealed Ball Bearings - Lube Fitting Provided

### 38" Mower

<b>Thickness</b>	12 Ga.
<b>Effective Cut Width</b>	38 in Mower - 38 in (97 cm)
<b>Overall Width</b>	With Deflector — 49.5 in (126 cm) With Turbo — 51.5 in (131 cm)
<b>Weight</b>	81 lbs. (36.7 kg)
<b>Cutting Height</b>	Variable Between 1.25—4 in. (3.2—10.2 cm)
<b>Cutting Width</b>	38" in (97 cm)
<b>Blade Arrangement</b>	Two Staggered Blades
<b>Mower Drive Clutch</b>	V-Belt from Rider Engine PTO Electric
<b>Spindle Bearings</b>	Sealed Ball Bearings - Lube Fitting Provided

## Parts & Accessories

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### Replacement Parts

Rider Drive Belt	1705142
44" Mower Drive Belt	1713549
44" Mower Arbor Deck Belt	167031
44" Mower Blades	1704100
38" Mower Drive Belt	108209
38" Mower Blade - RH	1704101
38" Mower Blade - LH	1704856
Fuel Filter	173206
Battery	1685215
Ignition Key	1717163
Switch - PTO	1713487
Interlock Switch - Seat	1714320
Interlock Switch - Foot pedal	1701580

### Optional Accessories

Clean Sweep™ Twin Catcher Collection System
Turbo Blower Attachments
Wide Body Cart Collection System
Quad Bagger Cart Collection System
Mulching Kits

### Maintenance Items

Engine Oil	
SAE 5W-30 SF/CD (Cold Weather 30° & under)	1685576
SAE 30W SG/CC (Warm weather 32° & up)	1685659
Touch-Up Paint	
Deep Orange, 13 oz. spray can	1685611
Deep Orange, 1 quart can	1685612
Deep Orange, 1/2 oz. bottle w/brush cap	1685615
Gloss Black, 13 oz. spray can	1685639
Gloss Black, 1 quart can	1685641
Metallic Grey, 13 oz. spray can	1685718
Red, 13 oz. spray can	1685722
Grease Gun Kit w/8 oz. Grease Tube	1685510
Replacement 8 oz. Grease Tube for above	103077
Tire Sealant	
11 oz. Tube	1685523
Degreaser/Degreaser	
32 oz. Bottle w/Trigger Spray	1685619
1 gallon	1685621
Gas Stabilizer	
8 oz. Bottle	1685748
Case of 12 - 8 oz. Bottles	1685747



# Lawn Care & Mowing Information

## GENERAL INFORMATION

Proper mowing is an important part of maintaining your lawn in the best possible condition. A healthy and well maintained lawn is better able to resist drought, weeds, and other stresses. But too much maintenance is as detrimental to your lawn as neglect. Proper care for your lawn involves more than just "cutting the grass." To have a healthy lawn, you need to know:

- ✕ Types of Grass, Climate and Conditions
- ✕ How and When to Water, Fertilize & Aerate
- ✕ How High to Mow the Grass
- ✕ When and How Often to Mow
- ✕ What Mowing Patterns to Use
- ✕ Proper Mowing Methods
- ✕ How to Solve Common Mowing Problems

## TYPES OF GRASS, CLIMATE AND CONDITIONS

A variety of grasses are commonly grown in household lawns, but two main groups known as cool-season grasses (varieties of bluegrass, ryegrass, and fescue), and warm-season grasses (typically bermuda, buffalo-grass, and zoysia varieties) are the most common.

The cool-season grasses are better suited to cooler climates, and do not endure hot and dry weather as well as warm-season grasses, but conversely, the warm-season grasses do not grow as well in cooler climates. Most residential lawns are typically seeded with a mixture of these grasses. (A local nursery or lawn center may help you to identify what kind of grass your lawn contains from a sample.)

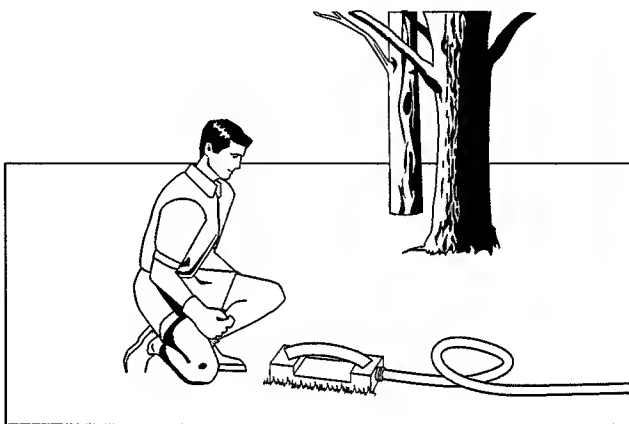
Knowing your climate and conditions is also important to proper lawn care. Drier climates or conditions will require additional watering, while wetter climates may require more frequent mowing.

## HOW AND WHEN TO WATER, FERTILIZE & AERATE

Every lawn's watering needs are unique and are dependent upon the type of grass and soil, the amount of local rainfall, and other conditions. **Most lawns are watered too often, but with too little water.** However too much water can allow development of diseases with your lawn. **It is best to water the lawn only when necessary, and then to water it slowly, evenly, and deeply—imitating a slow, soaking rain.**

### WHEN TO WATER YOUR LAWN

When the lawn begins to wilt, the grass's color dulls, or footprints stay compressed for more than a few seconds, the lawn is beginning to dry out, and needs additional moisture. The best time to water is early morning to allow the water to soak deeply into the lawn and reduce the amount that evaporates in the hot afternoon sun.



### HOW TO WATER YOUR LAWN

The best method of watering a lawn is to imitate a slow, soaking rain, applying about 1 inch of water. A method of verifying the amount that you have watered, is to place several empty tin cans (low shallow cans work best) in various spots around the lawn, and check the depth of water in the can during the watering process.

### HOW TO FERTILIZE YOUR LAWN

Fertilizing with a slow-release fertilizer provides missing nutrients which help create slow, even growth. While opinions vary on the need for fertilizing, when and how much to fertilize will be more a factor of the condition of the lawn and soil than any routine. Remember that over-fertilizing can cause harm, and that most fertilizing should be applied in the spring so that it will release into the lawn through the summer. For more information, check with a local nursery or lawn care specialist, and read and follow the fertilizer manufacturer's instructions.

### AERATING YOUR LAWN

Consider aerating your lawn in spring. Using an aerator to remove cores of soil from the lawn increases the speed of clipping decomposition and encourages deeper root growth by opening up the soil and permitting greater movement of water, fertilizer and air.

## Lawn Care & Mowing Information

### HOW HIGH TO MOW THE GRASS

Often cutting height is a matter of personal preference. Typically, you should mow the grass when it is between three and five inches high. The proper cutting height range for a specific lawn will depend upon several factors, including the type of grass, the amount of rainfall, the prevailing temperature, and the lawn's overall condition.

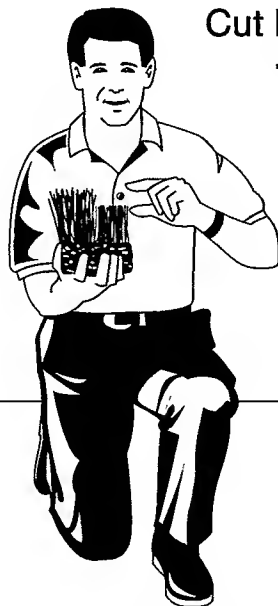
Cutting the grass too short causes weak, thin grass plants, which are easily damaged by dry periods and pests. Cutting too short is often more damaging than allowing the grass to be slightly higher.

Letting grass grow a bit longer—especially when it is hot and dry—reduces heat build-up, preserves needed moisture and protects the grass from heat damage and other problems. However, allowing grass to grow too high can cause thin turf and additional problems.

Cutting off too much at one time shocks the plant's growth system and weakens the grass plants. **A good rule of thumb is the 1/3 rule: to cut no more than one third of the grass height, and never more than 1 inch at a time.**

The amount of grass you are able to cut in one pass is also effected by the type of mowing system you are using (for example, broadcasting with side discharge decks can process a much larger volume of grass than mulching does).

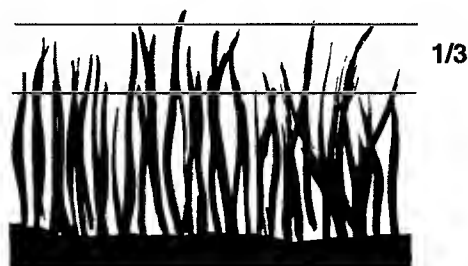
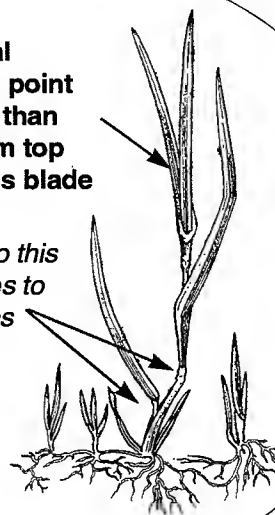
*NOTE: We cover some specific mowing instructions for mulching and broadcasting later in this Lawn Care section.*



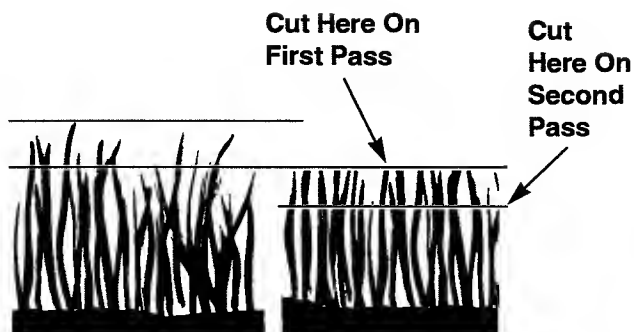
Cut less than  
**1/3**

Optimal cutting point at less than 1/3 from top of grass blade

Cutting down to this area contributes to thatch problems



Proper Cutting Height

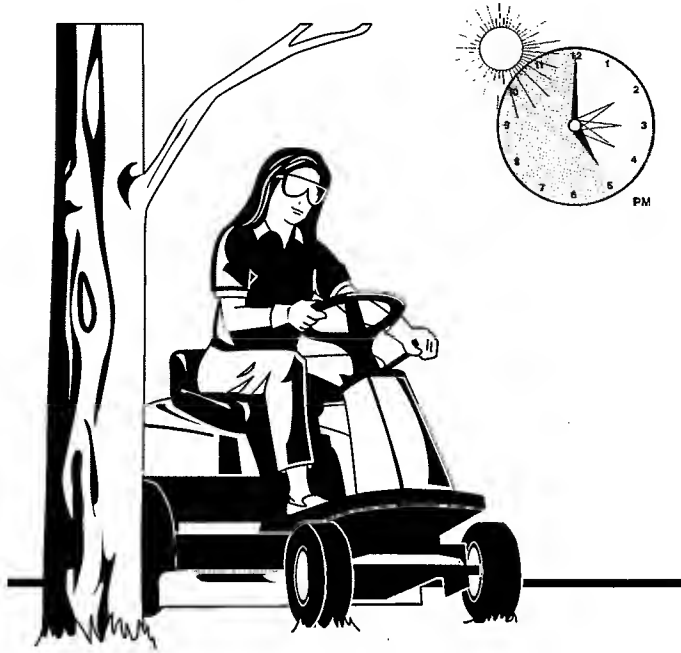


#### Tall Grass Requires Incremental Cutting

For extremely tall grass, set the cutting height at maximum for the first pass, and then reset it to the desired height and mow a second or third time.

Don't cover the grass surface with a heavy layer of clippings. Consider using a grass collection system and starting a compost pile.





### WHEN AND HOW OFTEN TO MOW

The time of day and condition of the grass greatly affect the results you'll get when mowing. For the best results, follow these guidelines:

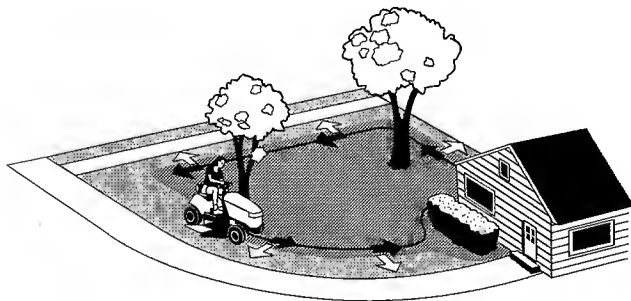
- Mow when the grass is between three and five inches high.
- Mow with sharp blades. Short clippings of grass one inch or shorter decompose more quickly than longer blades. Sharp mower blades cut grass cleanly and efficiently, preventing frayed edges which harm the grass.
- Mow at time of day when the grass is cool and dry. Late afternoon or early evening often provide these ideal mowing conditions.
- Avoid mowing after rain or even heavy dew, and never mulch when the grass is wet (moist grass does not mulch well, and clumps beneath the mower deck).

### WHAT MOWING PATTERNS TO USE

Always start mowing on a smooth, level area.

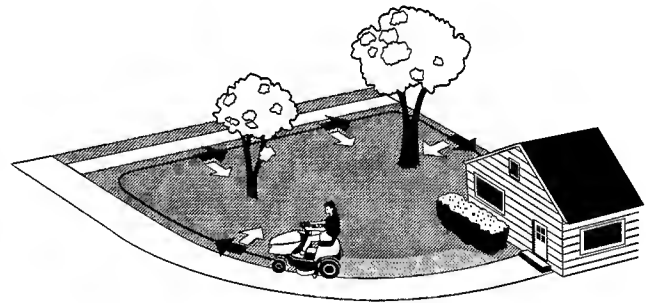
The size and type of area to be mowed will determine the best mowing pattern to use. Obstructions such as trees, fences and buildings, and conditions such as slopes and grades must also be considered.

- Cut long straight strips overlapping slightly.
- Where possible, change patterns occasionally to eliminate matting, graining or a corrugated appearance.
- For a truly professional cut, mow across the lawn in one direction, then recut the lawn by mowing perpendicular to the previous cut.



*The remainder of the mowing should be done in the opposite direction so that the clippings are dispersed OUT onto the area of lawn previously cut.*

*Where possible, make one or two passes around the outside of the area discharging the grass INTO the lawn to keep the cut grass off fences and walks.*



**Note:** Always operate the engine at full throttle when mowing.

If you hear the engine slowing down, you are mowing too fast—using a slower ground speed will improve the cutting efficiency of the blades and prevents many common cutting problems. Use an appropriate ground speed for the thickness and height of the grass you are cutting (3rd gear or slower for manual gear models). If you hear the engine slowing down you are mowing too fast, use a slower ground speed.

# Lawn Care & Mowing Information

## MOWING METHODS

### Proper Broadcast Mowing

Broadcasting, or side-discharging, disperses fine clippings evenly over the entire lawn. Many golf courses use this method. Your mower has a deep dish deck to allow freer circulation of clippings so they are broadcast evenly over the lawn.

#### ENGINE SPEED & GROUND SPEED FOR BROADCASTING

Always operate the engine at full throttle when mowing. If you hear the engine slowing down, you are mowing too fast—using a slower ground speed will improve the cutting efficiency of the blades and prevents many common cutting problems.

ALWAYS use an appropriate ground speed for the thickness and height of the grass you are cutting (3rd gear or slower for manual gear models). If you hear the engine



slowing down you are mowing too fast, use a slower ground speed.

#### HOW MUCH GRASS TO CUT OFF WHEN BROADCASTING

Mow when the grass is 3-5 inches long. Do not cut the grass shorter than 2 to 2-1/2 inches. Do not cut off more than 1 inch of grass in a single pass.

### Proper Mulching

Mulching consists of a mower deck which cuts and recuts clippings into tiny particles and which then blows them down INTO the lawn. These tiny particles decompose rapidly into by-products your lawn can use.

UNDER PROPER CONDITIONS, your mulching mower will virtually eliminate noticeable clippings on the lawn surface.

NOTE: When mulching under heavy cutting conditions, a rumbling sound may be present and is normal.

#### MULCHING REQUIRES EXCELLENT MOWING CONDITIONS

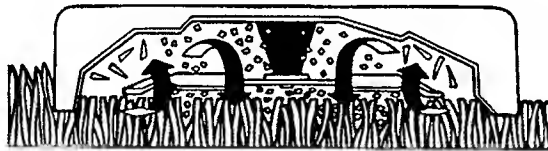
Mulching mowers cannot function properly if the grass is wet, or if the grass is simply too high to cut. Even more than normal mowing, mulching requires that the grass be dry and the appropriate amount is cut.

Do not use the mower as a mulching mower during the first two or three mowings in the spring. The long grass blades, quick growth, and often wetter conditions are more suitable for broadcasting (side-discharging) or grass bagging operation.

#### ENGINE SPEED & GROUND SPEED FOR BROADCASTING

Use full engine throttle matched with a slow ground speed so that clippings will be finely cut. Ground speed while mulching should be HALF of the speed that would be used when broadcasting (side discharging) under similar conditions. Since mulching requires more horsepower than broadcasting, using a slower ground speed is vitally important for proper mulching operation.

Mulching Action



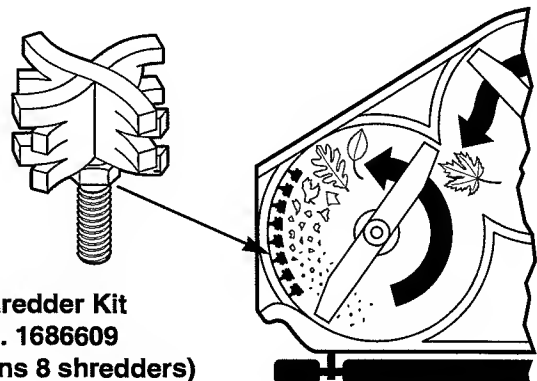
#### HOW MUCH GRASS TO MULCH

The best mulching action typically results from cutting only the top 1/2 inch to 3/4 inch of grass blade. This provides short clippings which decompose properly (much more quickly than longer clippings). The ideal cutting

height will vary with climate, time of year, and quality of your lawn. We recommend that you experiment with both the cutting height and ground speed until you achieve the best cut. Start with a high cutting height and using progressively lower settings until you find a cutting height that is matched to your mowing conditions and preferences.

#### LEAF SHREDDING (USE WITH OPTIONAL MULCHER KIT)

Simplicity's patented Shredder Blades virtually eliminate raking leaves. Up to 512 cutting edges pulverize leaves into tiny particles, which quickly and naturally decompose into food for your lawn. The Shredder Blades must be removed when you mulch grass clippings.



### TIPS On Dealing With Clippings

Clippings are **beneficial** to your lawn. A common misconception about clippings is that they automatically lead to thatch—this is untrue. Short clippings produced by broadcasting and clippings produced by mulching methods actually **contribute to a healthy lawn** because they:

- ✗ Reduce the evaporation of water from your lawn.
- ✗ Provide a cushioning layer to reduce lawn wear.
- ✗ Moderate soil temperature.
- ✗ Clippings act as a safe, non-polluting and inexpensive fertilizer that nourishes your lawn. Fresh cut grass blades are 85% water, and are a rich source of nitrogen which is essential to lush growth. And one garbage bag of clippings contains about 1/4 lb. of usable organic nitrogen.

### COMPOSTING

The best way to recycle excess clippings and leave your lawn looking immaculate is to collect them with an efficient collection system and deposit them in a compost pile. A compost pile is a collection of grass, leaves, and other organic wastes which—when properly tended—decompose into an odorless, topsoil material. This material, in turn, acts as an inexpensive fertilizer for your lawn and garden.

#### How to start a healthy compost pile:

- 1 Build a bin using bricks, fencing, cement blocks, etc. or purchase a prefabricated bin from a garden store. The bin should also have venting on each side and from the bottom to the top.

- 2 Fill the bin with alternating layers of yard waste. Follow this recipe:

First layer: 3-4 inches of chopped brush or other coarse material.

Second layer: 6-8 inches of mixed leaves, grass clippings, sawdust, etc. Materials should be "sponge damp."

Third layer: 1 inch of soil to add micro-organisms that help break down organic matter.

Fourth layer: 1-2 inches of manure to provide the nitrogen needed by micro-organisms.

Keep adding layers until the bin is almost full. Top off with a 4-6 inch layer of straw and scoop out a "basin" to catch rain water.

- 3 Four or five days later the pile will reach temperatures of 140-160 degrees. At this time you'll notice it settling, a good sign your compost is working properly.
- 4 After 5-6 weeks, fork materials into a new pile, turning the outside of the old heap into the center of the new one. Add water if necessary. The compost should be ready to use within three to four months when dark brown, crumbly, and earthy-smelling.



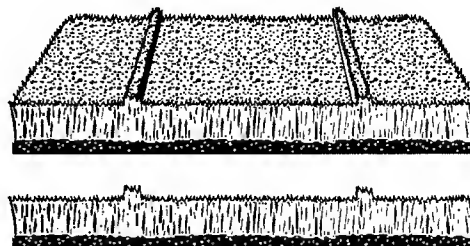
# Lawn Care & Mowing Information

## SOLUTIONS FOR COMMON MOWING PROBLEMS

### Streaking

Streaking is when thin strips of uncut grass are left behind the mower. Streaking is usually caused by operator error or poor blade maintenance.

### Streaking



#### CAUSE

Blades are not sharp
Blades are worn down too far
Engine speed is too slow
Ground speed is too fast
Deck is plugged with grass
Not overlapping cutting rows enough
Not overlapping enough when turning

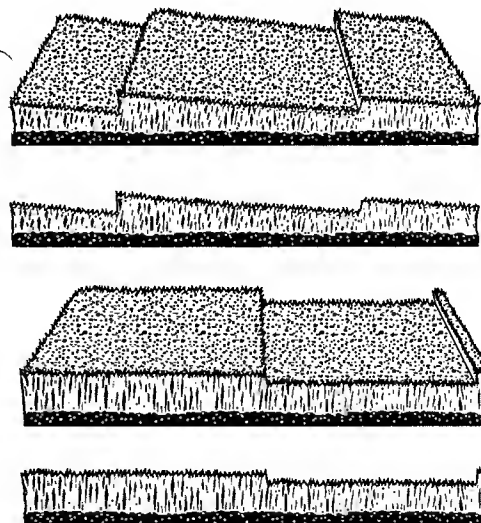
#### SOLUTION

Sharpen your blades
Replace your blades
Always mow at full throttle
Slow down
Clean out the mower
Overlap your cutting rows
When turning your effective cutting width decreases—overlap more when turning

### Stepped Cutting

Stepped cutting is sharp ridges or uneven levels left in the lawn surface. Stepped cutting is usually caused by mower deck damage or misadjustment, or damage to mower blades.

### Stepped Cutting



#### CAUSE

Deck is not leveled correctly
Tires are not properly inflated
Blades are damaged
Deck shell is damaged
Mower spindle is bent or loose
Blades are installed incorrectly

#### SOLUTION

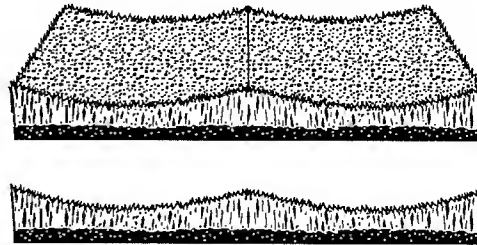
Level the deck correctly
Check and inflate the tires
Replace the blades
Repair or replace the deck
Repair or replace the spindle
Reinstall the blades correctly

# Lawn Care & Mowing Information

## Uneven Cutting

Uneven cutting is waviness or smooth troughs in the lawn surface. Uneven cutting is usually caused by mower deck damage or misadjustment.

### Uneven Cutting



#### CAUSE

Deck is not leveled correctly
Blades are dull or worn
Blades are damaged
Deck is clogged with grass clippings
Deck shell is damaged
Mower spindle is bent or loose
Blades are installed incorrectly

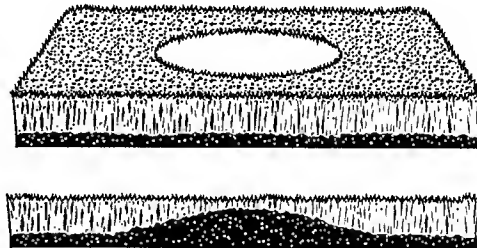
#### SOLUTION

Level the deck correctly
Sharpen or replace the blades
Replace the blades
Clean out the deck
Repair or replace the deck
Repair or replace the spindle
Reinstall the blades correctly

## Scalping

Scalping is when the mower deck comes close to or hits the ground. Scalping can be caused by the mower deck misadjustment, unevenness in the lawn, or by mower deck bouncing because the ground speed is too fast.

### Scalping



#### CAUSE

Lawn is uneven or bumpy
Mower deck cutting height is set too low
Ground speed is too fast
Deck is not leveled correctly
Tire pressure is low or uneven

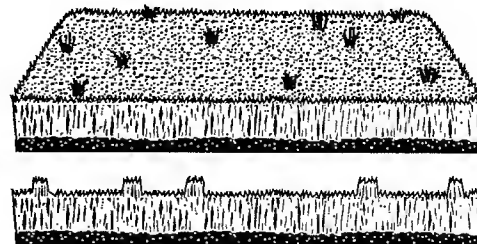
#### SOLUTION

Roll or level the lawn
Raise the cutting height
Slow down
Correctly level the deck
Check and inflate the tires

## Stingers

Stingers are sparse patches of uncut grass left behind the mower. Stingers are usually caused by operator error or poor blade maintenance.

### Stingers



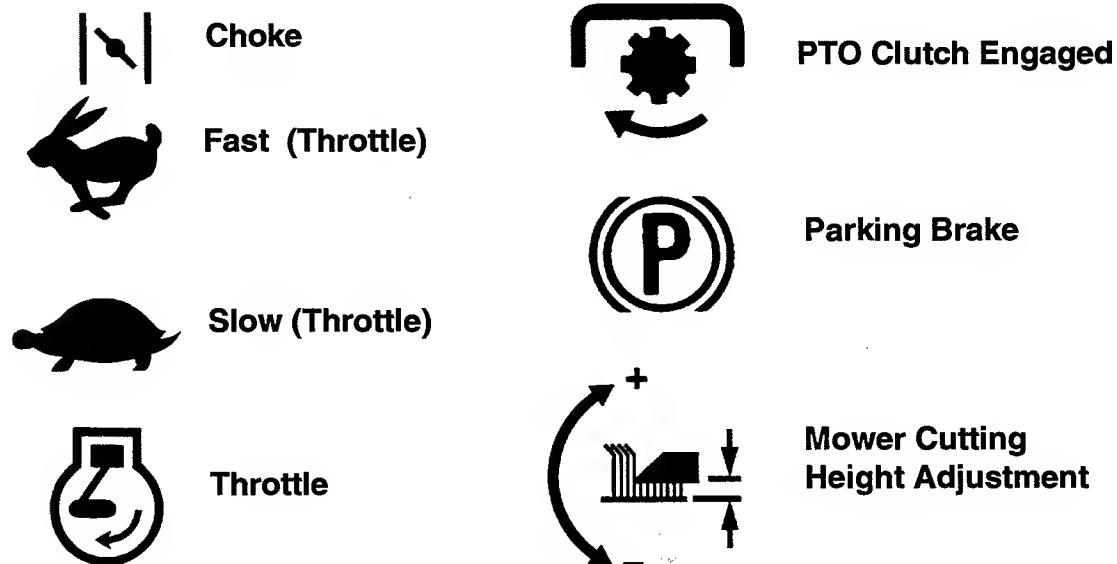
#### CAUSE

Blades are not sharp or are nicked
Blades are worn down too far
Engine speed is too slow
Ground speed is too fast
Deck is plugged with grass

#### SOLUTION

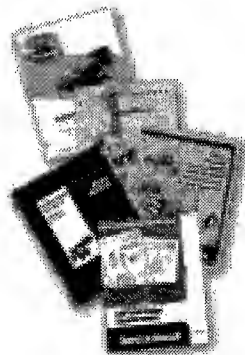
Sharpen your blades
Replace your blades
Always mow at full throttle
Slow down
Clean out the mower

## Common International Symbols



## Technical Manuals

### Additional Technical Literature Available

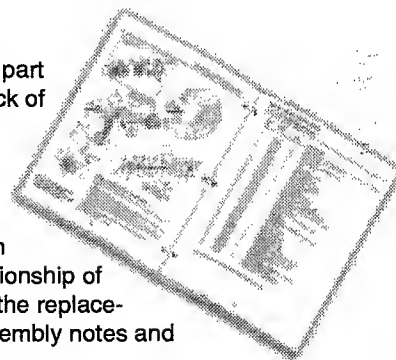


#### **Operators Manuals**

Additional copies of this manual are available, (and as part of our product support commitment, we maintain a stock of printed operators manuals going back many years!)

#### **Parts Manuals**

Fully illustrated parts manuals are also available — these manuals show all of the product's components in exploded views ("3D" illustrations which show the relationship of the parts and how they go together), as well as giving the replacement part numbers and quantities used. Important assembly notes and special torque values are included in these manuals.



*For the applicable manuals currently available for your model, contact our Customer Publications Department at 414-284-8519. Have the information listed in the box at the right available when phoning in your request.*

***Please allow 3 to 4 weeks for delivery.***



Model: \_\_\_\_\_  
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LAWN & GARDEN EQUIPMENT

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